JOURNAL

of the

NATIONAL ASSOCIATION *of* CHIROPODISTS

The Official Publication of the Profession

Metatarsalgia

Calcaneal Apophysitis

Infantile Metatarsus Varus

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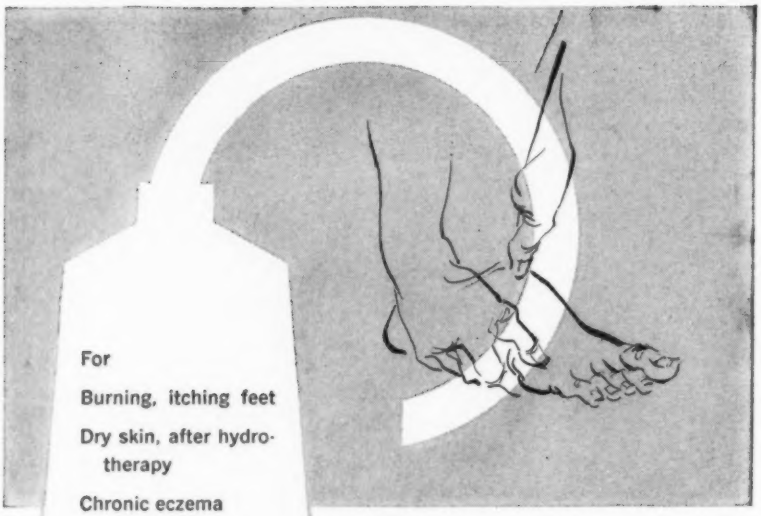
VOLUME 47, NUMBER 9

SEPTEMBER, 1957



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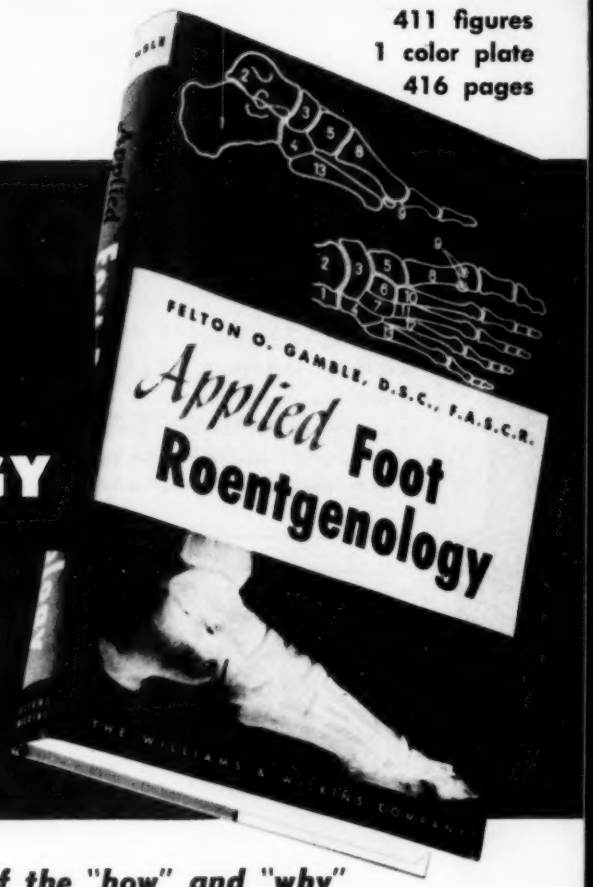

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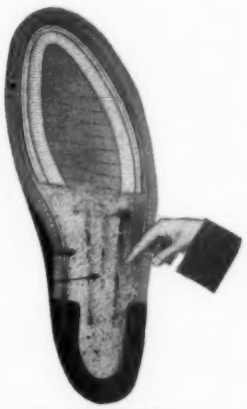

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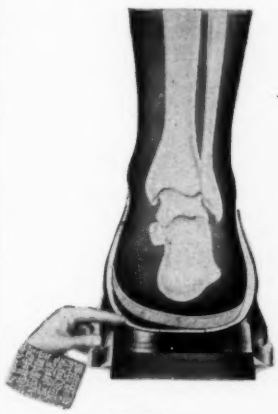

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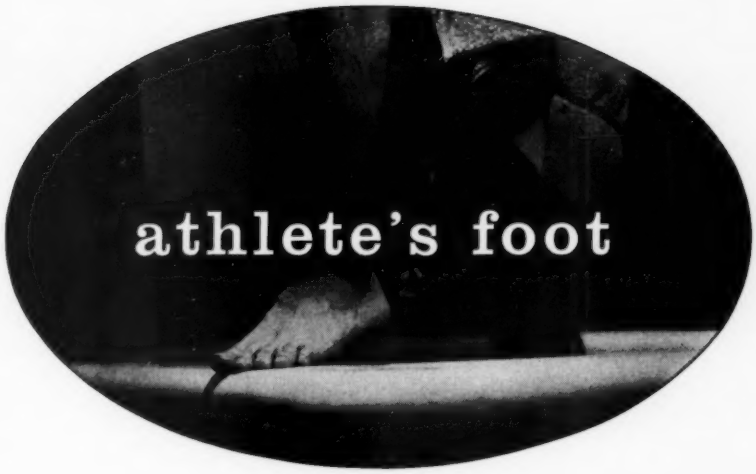

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CHIROPODICAL MANAGEMENT OF INFANTILE METATARSUS VARUS*

OSCAR M. SCHEIMER, D.S.C., F.A.S.C.R.†
Westwood, N. J.

CHIROPODY, as a profession, is dedicated to the cause of preserving and maintaining the foot health of the public. It has made great strides in the past twenty years, elevating itself from a position of bare tolerance, to an accepted place in the family of the healing arts. However, there still exists an increasingly large percentage of the world's population whose feet are given only secondary consideration, the feet of babies. It does not seem to be very logical to attempt to correct the foot problems of youth and adults while completely ignoring the most obvious source of many of these problems, namely, those found in babies. Over the years, the writer has attended an untold number of conventions and scientific symposiums, as well as having perused literally hundreds of professional papers. The amount of lecture time and printed space devoted to chiropodical pediatrics has been so little that it is virtually nil.

Nature, in all it's wonderful creations, ofttimes is rather cruel in producing abnormal young. Fortunately for humanity, many of these abnormalities will frequently rectify themselves. Growth helps overcome many deformities, but equally can turn what was thought to be a minor fault into a serious cosmetic and functional calamity. What higher goal then can a profession strive for than the prevention of such a tragedy. It is up to chiropody to assume the lead because as was pointed out in Locke's paper, Charles Mayo said of medicine, "I am convinced that doctors of medicine, myself included, have paid too little attention to the feet in their relationship of a patient, and have made too cursory an examination of the feet." Mayo continues with, "When care and treatment of foot ailments are necessary, he (the doctor) should refer the patient to those accredited and skilled in that specialty (chiropody) when such consultation is available." There is, however, one specialty branch of medicine in which this is not the case and with which chiropody should establish a much closer liaison. That specialty is Pediatrics. The pediatrician, because of being in a position to discover foot abnormalities early, when treatment is most effective, can be chiropody's greatest ally. The pediatrician's examina-

*First Award, 1957 Wm. J. Stickel Annual Awards for Research in Chiropody.
†Staff Chiropodist, Hackensack Hospital, Hackensack, N. J.

tion of the feet is thorough and comprehensive. He will be found to be most cooperative when he knows of someone on whom he can rely. It would prove to be excellent interprofessional relations for every chiropodist to visit the pediatrician in his community and apprise him of how they may work together. The balance of this paper will present the results of an intensive study which is the direct result of just such a relationship. Although the treatment for infantile metatarsus varus was first brought to the attention of the writer by Koors, it was with the complete cooperation of Phoebe Hudson, M. D., a Fellow of the American Academy of Pediatrics, that a sufficient number of cases were seen to arrive at a conclusion.

The most prevalent foot abnormality found in newborn babies is metatarsus varus. Metatarsus varus is also known as talipes metatarsus varus, metatarsus adductus, and clubfoot. The incidence of this deformity is such that it warrants considerably more attention than that which is given it. Shands reported that among 1232 consecutive cases of primary foot diagnosis conducted at the A. I. duPont Institute at Wilmington, Delaware, 11% were metatarsus varus. These figures show that slightly more than one out of every ten babies are so afflicted, which should be prima facie evidence of its seriousness. Both general medical and chiropodical literature share equally in the guilt of not giving this condition the attention it deserves. In fact, general useful literature on metatarsus varus only began to be accumulated about forty years ago. The reason for this probably was because only the severe cases were given any attention previously, and then only in older children. Peabody reports only fifteen cases and of these thirteen were at the average age of 3.7 years which resisted conservative treatment and had to be treated surgically. On the other hand, Kite reported that in a relationship of three hundred easily corrected cases of metatarsus varus, only nine were serious cases. Kite used a closed plaster of Paris technique on his three hundred cases, however, one third of these were recognized at birth and the balance at an early age making conservative treatment easy and effective. Due to the rapid growth of the foot, the earlier these cases can be seen, the better. Although Holt and McIntosh reported that true clubfoot appears twice as frequently in boys as in girls, metatarsus varus seems to affect boy and girl babies equally. In metatarsus varus, over half the cases are bilateral, but when it is unilateral, the left foot seems to be involved more frequently than the right. The normal foot of the infant is grossly abnormal when judged by adult standards. Fat pads obscure the longitudinal arch and simulate a pes planus. The Achilles tendon may be somewhat angulated and the foot slightly inverted, but still be within the normal range. However, in metatarsus varus the foot is definitely abnormal.

There seems to be some confusion arising out of the dual terminology of metatarsus varus-metatarsus adductus. (A similar state of confusion seems to exist in the dual terminology of chiropody-podiatry.) The metatarsus varus vs. metatarsus adductus problem, however, presents a moot question as to which condition is the more severe. Peabody's claim, substantiated by Altman and Hanisch, is that metatarsus varus was the more difficult to correct and that metatarsus adductus was relatively simple. On the contrary, Kite gave a directly opposite view by stating that metatarsus adductus was the harder, and metatarsus varus the easier. As there is no clear-cut anatomic basis for this division of terminology, Robinson suggests the use of one term only, that being metatarsus varus.

The etiology of metatarsus varus or talipes is unknown but some theories in this respect have been advanced. Brennerman

states that talipes cannot be attributed to any one etiological factor, but opinion seems to be that fetal posture is responsible. In an otherwise normal infant, metatarsus varus is thought to be caused by the pressures of the uterine wall or by the fetus itself resting on its feet. Although metatarsus varus is a form of talipes or clubfoot, it differs from a true clubfoot in the respect that in the majority of all medially deviated feet there is no bony malformation and can be easily corrected. The prognosis for metatarsus varus is excellent. Although some writers have associated a relationship between matatarsus varus and tibial torsion, there is not unequivocal evidence to substantiate this. A differential diagnosis between internal tibial torsion and metatarsus varus is of the utmost importance. Both conditions tend to affect the left side more than the right without any apparent cause or reason. However, internal tibial torsion tends to be self limiting, correcting itself before the infant starts to walk, which does not occur in metatarsus varus. In metatarsus varus, the proximal bones of the foot, consisting of the talus and the calcaneous, may or may not be involved, according to the severity of the condition. In a severe case of metatarsus varus, the calcaneous is usually in a marked valgus position, whereas in a mild case the calcaneous is not markedly affected. In a very severe case of metatarsus varus, the calcaneous may be fixed so that the heel cannot be moved into a varus position by the examiner. This type of metatarsus varus is often associated with a talipes equinus. In a normal foot or one with a relatively mild metatarsus varus, however, an equinus deformity is never found. This can be demonstrated in a metatarsus varus by holding the heel in a neutral position and bringing the foot into dorsiflexion to a point where it touches, or almost touches the anterior part of the lower leg. In a true metatarsus varus the metatarsal bones and digits are adducted or angled toward the mid-line of the body away from a straight line drawn through the tarsal bones. In a true talipes or clubfoot, the mid-foot is also adducted. Even though x-ray studies are essential for a correct diagnosis, there is one objective symptom which never fails. In metatarsus varus the outer border of the foot is always convex. The absolute necessity for the correction of this deformity is substantiated by Diamond's report on the necessity of structural alignment being a prerequisite to normal function. The writer must take issue with Schuster when he claims that except in extreme or isolated cases, this condition causes no inconvenience if the foot is properly shod. Schreiber and Weinerman stated a truism when they said, "The correction of talipes lies deeper than the superficial consideration given these conditions in the theories expounded in many textbooks and articles." It is the opinion of the author that a large percentage of foot ailments, of the orthopedic variety, seen in the chiropodist's office in later life had their beginnings in untreated metatarsus varus.

The treatment for metatarsus varus is a specific one and for the exception of very serious involvement, is relatively easy. It falls well within the scope of chiropody and is an office procedure. For a condition which is as prevalent as metatarsus varus, it is absolutely amazing at the lack of fundamental knowledge many alleged authorities display in discussing treatment. Aside from surgical intervention which may be indicated in exceptional cases, there are those who advocate the use of shoes, wedging of shoes, Denis Browne splints, cohesive or adhesive bandaging, manipulation and plaster casting. In order that the chiropodist will not become completely confused these various types of treatment will be discussed and evaluated.

Open surgery is the only method in a

few very severe cases in infancy and perhaps it is the only recourse in those which have been long neglected. In mild or moderate cases surgery is not necessary and few, if any, orthopedic surgeons would take such drastic steps when other means will suffice.

In discussing the use of shoes, consideration must be given to what part they will play in the treatment. When shoes are employed as an adjunct for follow-up treatment they become a necessary part of the therapy, but if shoes are to be considered as the only means of treatment, then they are worthless. It must be remembered that any treatment for metatarsus varus should be started as soon after birth as possible and surely before the infant reaches the age of six to eight months. Shoes of the "Tarso" type are almost impossible to acquire for very young babies, they are expensive and not available in outlying areas. To wait until a child is old enough to use this shoe is to have waited too long at the outset. The theory of using a wedge in a shoe to correct any degree of metatarsus varus is completely without the slightest scientific merit and deserves no consideration in a report of this type. Figure 1 shows the result of a neglected case of metatarsus varus. This is the foot of a 30-year-old female. This young woman has been properly shod and according to Schuster should have experienced no inconvenience. She not only experiences a lot of inconvenience, but walks with an unnatural gait. She is unstable on her feet and suffers considerable discomfort both physically and emotionally as a direct result of her deformity. Early treatment could have prevented this misfortune.

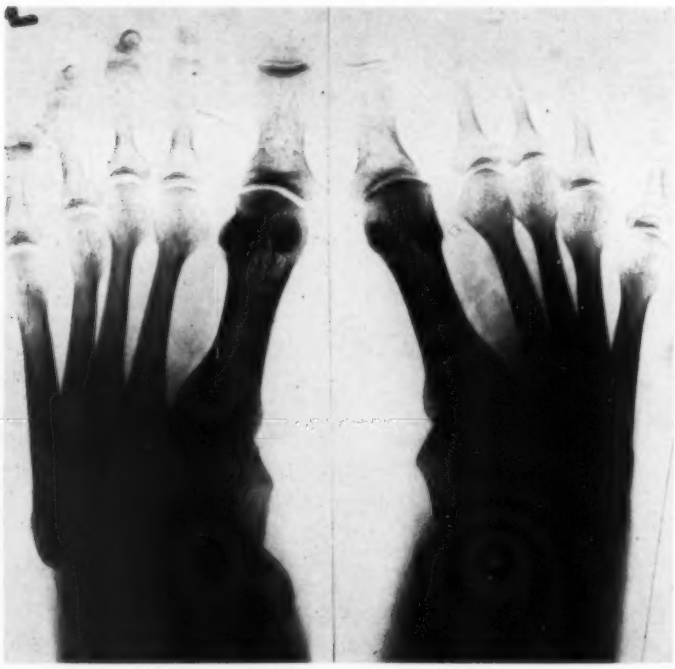

Fig. 1. Female, age 30, neglected metatarsus varus.

The use of Denis Browne bars has achieved a great deal of popularity in the practice of chiropody, however they are far from being a panacea for children's foot problems. The Denis Browne bar is indicated for the correction of tibial torsion but has no place as a means of correction, or as an adjunct to the correction of metatarsus varus. In treating metatarsus varus, correction is required only in the forefoot and to apply Denis Browne bars for this condition will only demonstrate a lack of knowledge as to the pathology involved. Sharp, in speaking of Denis Browne bars, puts it kindly when he says, "Their use in

the treatment of metatarsus varus is limited." There is no sound reason whatever for the use of Denis Browne bars in the treatment of metatarsus varus.

Newman reported treating various types of talipes using a cohesive bandage fortified by the application of adhesive tape. Considering the possibility of producing a dermatitis on the tender skin of a baby, and that this method produces no better result than plaster casting, its use is strictly academic.

Manipulation, if properly applied and faithfully executed, will often be successful in very mild cases of metatarsus varus. Its success depends on a daily ritual performed by the child's mother, but like so many good intentions, is frequently neglected, making for a poor result. The use of manipulations also presents a certain amount of potential danger when administered by a layman. Kite warns that aggressive manipulation and wrenching may damage the articular surfaces of the bones and may even crush the bones, thereby resulting in partial or complete ankylosis. Lewin states that excessive manipulation, especially with the wrench, may be followed by aseptic necrosis of the astragalus. In view of the above warnings, one should be extremely cautious in prescribing home manipulation, and then only in very mild cases and under strict professional supervision.

The use of plaster of Paris casts is by far the best treatment for metatarsus varus. Treatment involves a minimum of time and the prognosis is excellent. There is no discomfort to the patient and parent cooperation is very good, because results are obvious early in the treatment. Casts changed frequently seem to produce much better results, therefore they are changed every ten days to two weeks. This method also has the advantage of an early discovery of any possible skin irritation, although that is rare. Plaster casting is the method of treatment agreed upon by the majority of practitioners doing any amount of this work. It should also be the method of choice for chiropody to adopt. It is strictly an office procedure involving a minimum of time and material. The only necessary materials required are: (1) a lubricating emollient, such as Emolan Cream ®[1], (2) an underpadding of either cotton flannel or Webril ®[2] bandage, and (3) a few rolls of two or three inch Extra Fast Setting Specialist ®[3] plaster of Paris bandages.

The technique is as follows. Apply a thorough coating of the lubricating media to the foot and leg as far as just below the knee. The underpadding is then wrapped over this area. Start a little anterior to the ends of the toes so some of the bandage can be folded back on the plaster, thus making a soft smooth edge. The same thing should be done at the knee. Wrap the cotton bandage in a spiral, being certain that the heel and malleoli are well protected. Do not make this layer too thick or the cast will slip, and be careful not to wrap too tightly. The size of the plaster of Paris bandage will be determined by the size of the babies' legs. Fat babies usually require the three-inch roll whereas slim babies require the two-inch size. Immerse the plaster bandage into a basin of tepid water for about five seconds or until all bubbles stop arising. Then gently squeeze out all excess water. However, do not squeeze too dry, otherwise the plaster will set too rapidly. The plaster bandage is applied in the same manner as the underpadding, starting about one half inch from the end. This will permit that end to be folded back as previously mentioned. The plaster bandage is applied snugly but not tight in a spiral with each turn overlapping the preceding one. One roll is

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usually sufficient to encircle the foot and leg to a thickness of approximately two to three layers which is heavy enough. The entire cast may then be smoothed out by rubbing it with the hands in a circular motion, following the contours of the foot and leg. Mark the end of the plaster bandage with an indelible pencil so it can be located for easy removal of the cast by the patient's mother. The foot is now ready to be placed into a position of overcorrection. This is done by holding the heel with the left hand just below the lateral malleolus. The heel and midtarsal bones should fit into the hypothenar surface of the palm. The medial side of the foot is then taken by the right hand so that the first metatarsal shaft and great toe fits into the palm. Rather firm but gentle pressure is then applied in the direction of the operator's left hand. This will force the forefoot into a position of abduction or overcorrection. The foot is held in this position until the plaster sets. The distal end of the cast should then be checked to be sure that the ends of the toes are visible. This is an extra safety precaution which would show an evidence of cyanotic changes if the cast had been applied too tightly.

The mother is instructed to remove the cast the night before the next scheduled visit which is usually ten days to two weeks hence. The removal of the cast is a simple procedure. The entire cast is soaked in a basin or bathtub of warm water from ten to fifteen minutes. The end of the plaster bandage, which was marked with the indelible pencil, is picked up and the entire plaster bandage then unwound. This method of cast removal is much simpler than if it were done at the office. It also affords the child's mother an opportunity of giving the baby a complete bath, a task which is not too easy while the cast is in place. All future casts are applied in the same manner as the first. Most cases of metatarsus varus will respond within a two month average, well enough so that additional casting is unnecessary.

At the conclusion of the third or fourth cast additional x-ray studies are made. Particular attention is paid to the lesser metatarsal shafts and if they show satisfactory correction, casting is discontinued. The first metatarsal shaft may still show some varus position, but that will be finally corrected by the post-casting treatment. This consists of instructing the mother to apply gentle manipulation following the same overcorrection position in which the foot was held by the plaster. The manipulations are to be done two or three times daily. The baby is fitted with a pair of ordinary shoes which are worn reversed. The shoes are used only to hold the foot in its new straight line position, and for a short time only. These babies have as yet not arrived at the walking age, therefore an "orthopedic" shoe is not required. The baby is examined about two weeks later and again in a month. The shoes can usually be discarded as a means of therapy

Fig. 2. Left—unaffected foot, center—metatarsus varus right foot before treatment and right—same foot after treatment.

in one or two months, however, periodic examinations are advised. The final discharge of the patient is granted soon after the child begins to walk and that function is determined to be correct.

The following twelve cases were seen in the past two years. They show conclusive evidence of the results of such treatment. The cases illustrated are representative.

Case Reports

Case 1. Baby L. C. Female age 3½ months. Bilateral metatarsus varus, 5 casts applied at 2 week intervals. Reverse shoes worn 2 months.

Case 2. Baby W. G. Male age 3 months. Metatarsus varus right foot (Fig. 2), 3 casts applied at 2 week intervals. Reverse shoes worn 1 month.

Case 3. Baby P. G. Female age 5 months. Metatarsus varus primus left foot (Fig. 3), 4 casts applied at 10 day intervals. Reverse shoes worn 2 weeks.

Fig. 3. Metatarsus varus primus before (left) and after (right) treatment.

Case 4. Baby J. H. Male age 4 months. Metatarsus varus right foot (Fig. 4), 4 casts applied at 2 week intervals. Reverse shoes worn 2 months.

Case 5. Baby W. M. Male age 2 months. Metatarsus varus left foot, 6 casts applied at 10 day intervals. Reverse shoes worn 1 month.

Case 6. Baby R. P. Male age 4 months. Metatarsus varus right foot, 5 casts applied at 10 day intervals. Reverse shoes worn 1½ months.

Case 7. Baby T. S. Male age 8 months. Bilateral metatarsus varus, 8 casts applied at 2 week intervals. Reverse shoes worn 2½ months.

Case 8. Baby L. S. Female age 4 months. Bilateral metatarsus varus, 2 casts applied at 2 week intervals. Treatment discontinued by parent.

Case 9. Baby K. T. Female age 6 months. Metatarsus varus right foot, 5 casts applied at 2 week intervals. Still under treatment.

Case 10. Baby R. K. Male age 5 months. Bilateral metatarsus varus, 4 casts applied at 2 week intervals. This case resistant and still under treatment.

Case 11. Baby R. K. (Twin brother of above.) Metatarsus varus left foot, 2 casts applied at 2 week intervals. Very mild—Discharged.

Case 12. Baby M. S. Male age 5 months. Bilateral metatarsus varus, 5 casts applied at 2 week intervals. Still under treatment.

Summary

1. The treatment of infantile metatarsus varus lies well within the boundaries and capabilities of contemporary chiropody.

2. X-ray studies are imperative for diagnosis. However, the following objective symptoms are an unfailing guide. The lateral border of the foot is convex, the medial border concave.

Fig. 4. Metatarsus varus before (left) and after (right) treatment.

3. The prognosis for this deformity, when treated by the application of plaster casts, is good to excellent.

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I live in that solitude which is painful in youth, but delicious in the years of maturity.

Albert Einstein

DANGERS OF CASTING FOR THE "CONTOUR SHOE"*

With Special Reference to the Feet of Individuals with Diabetes Mellitus and Arteriosclerosis Obliterans

MILTON HENENFELD, POD.D., F.A.P.
New York, N. Y.

THE rash of "contour shoes" (moulded or space shoes) which has flooded parts of this country and which threatens to invade other parts, raises a rather serious problem involving the public-at-large. The chiropodist-podiatrist has neglected adequately to consider the hazards involved nor has he presented these hazards, considered and unconsidered, to the layman who at present is totally unaware of the implications which may result in injury to his feet. The seriously dangerous effects presented by the footwear affect only a small portion of the public, but as more and more of this particular type of shoe is fabricated, the percentage of potential hazard will increase and the number of deleterious results will rise. The individuals concerned are those who suffer from diabetes mellitus, those with peripheral vascular occlusive diseases, as well as those who have certain neurologic disorders which interfere with normal perception of pain, heat, and cold. These persons present themselves and their feet to commercial establishments wherein laymen proceed to cast them for shoes. The untrained and unsupervised individuals are unable to recognize the symptoms and effects of occlusive vascular disease being in most cases ignorant of their very existence. They are unfortunately unaware of the constant danger in which these individuals find themselves, are unaware of the part injury of any kind plays in such cases, or otherwise of the precautions necessary to avoid injury. They are further in no position to prevent complications and sequelae ensuing therefrom. The number of cases of gangrene and amputation produced in such cases has not been computed, but they are taking place and the number will increase in proportion as the number of "contour shoes" made without control increases.

The dangers with which this paper deals are not those on the merits or demerits of the shoe itself. The advisability or inadvisability of such a shoe for and on the human foot presents a research project sorely needed. It rather considers the dangers involving life and limb in those individuals who suffer with diabetes mellitus or arteriosclerosis obliterans and who have plaster of Paris casts made upon their feet in preparation for the "contour shoe."

This problem was forcefully brought to the attention of the writer when, in the capacity of expert witness, he was called upon to testify that a plaster of Paris cast (the type used in the fashioning of a "contour shoe") could produce sufficient heat to cause a "burn" in an individual with diabetes mellitus and arteriosclerosis obliterans, with subsequent ulceration, gangrene, and amputation.

The case involved a male, aware of the fact that he had diabetes mellitus and who entered a commercial establishment on his own volition to order a pair of "contour shoes." During the casting procedure he complained of the fact that his feet were burning and was told by the lay person who did the casting that this was the usual occurrence. The casts were completed without interruption. Upon arriving home that evening the individual's feet were erythematous. In two days bullae had formed and broken resulting in gangrene and eventual amputation of one foot, and the other leg. The defense claimed that the plaster of Paris burned his feet and was the immediate injury which produced the gangrene and the amputation.

* 2nd Award, 1957 Wm. J. Stickel Annual Awards for Research in Chiropody.

The pre-trial examination elicited information which illustrates the dangers inherent in the indiscriminate casting of feet by unqualified personnel and also the lack of information concerning casting procedures and their effects. The scientific literature is lacking in certain of these aspects and because of this research was instituted with the results presented in this paper.

Excerpts from the Pre-Trial Examination Of the Person Who Made The Cast:

Q And do you have any knowledge as to what the chemical content is of the plaster?

A No, sir.

Q You said that you strapped him to avoid motion while you were in the course of this work?

A Yes. I strapped him above and below the knee . . . not strapped tightly, strapped so that when they do get the shock they would not move.

Q When you speak about a shock what do you mean?

A The cold plaster.

Q Is the plaster chilled?

A Yes.

Q And how do you chill it?

A From a water cooler.

Q In other words the water that you put in is iced and drawn from a cooler?

A Yes.

Q Wasn't hot water used?

A No, sir.

Q Did you take any history from the plaintiff as to his condition or anything of the sort?

A No, sir.

Q Did you ascertain whether he was suffering any ailment?

A Trouble with his feet. He told me he was a salesman, he was on his feet all day. He needed a pair of shoes so he could earn a living on his feet.

Q When you put this cold water into the plaster, did that generate heat in the plaster?

A Plaster does not generate heat.

Witness attorney: How do you know?

A Because the pan will get hot on me.

Q When he first came to you and you started the work, did you make any examination of either of his feet?

A The only examination is that I look for any open wounds.

Q Did he at that time call your attention to the fact that his feet burned?

A That is the usual procedure, they all get a little warm.

Q Is there any test made to determine whether or not the plaster is too hot for application to the foot?

A We have never had occasion to make any tests.

It is quite evident from the above that the lay person casting the foot presented to him was unaware of the presence of any disease process within the foot which would have contraindicated casting, nor was any attempt made to determine from the plaintiff whether any such condition existed. It further points up the fact that the individual casted was not sufficiently aware of the inherent dangers of his own physical condition to himself so that he could have avoided injury.

The basic question was whether the application of a (specific) plaster of Paris cast could produce sufficient heat to cause a burn in a patient with diabetes mellitus and arteriosclerosis obliterans. It was discovered there was no accurate information in the literature as to how hot a specific cast could get. The factors which could increase heat production in a setting cast were fairly well known but the degree in which heat was increased by any one of, or by a combination of these factors had not been established. How long does heat remain within a cast? How long does it remain at its highest degree of intensity? What is the intensity at any given time?

Since a specific problem presented itself, research limited itself to the type of plaster employed and the type of casts used in the preparation of a "contour shoe."

The experiments sought to give the answers to the following:

1. What is the greatest intensity of the

heat produced?

2. What is the intensity of the heat at any point from the time the cast is placed upon the foot until it is removed?

(Since the length of time a cast remains upon the foot is determined by the individual taking the cast, and since this time may be extended long after the cast has set, it was deemed advisable to register the intensity of heat produced for a period well past the usual time set for making casts. In this case 45-60 minutes.)

3. What are the factors which can increase the heat of the setting plaster of Paris? How much of an increase takes place?

4. What temperatures are considered injurious to tissues of the lower extremities in patients with diabetes mellitus and arteriosclerosis obliterans?

5. Can the increase in temperature of setting plaster of Paris produce a "burn" in individuals with diabetes mellitus and arteriosclerosis obliterans?

Experiments on Heat Production Of Plaster of Paris Casts

Composition of plaster of Paris

Plaster of Paris is composed of gypsum rock (calcium sulphate)[1]. By a special heating process the natural water of crystalization is removed (the process is called calcination) changing the double hydrate of calcium sulphate to the half-hydrate. The result is a fine powder. This process is reversible. By the addition of water, the original form is restored.

Type of plaster

In the experiments herewith recorded, U. S. Gypsum Superfine Casting Plaster was employed. The setting time according to the manufacturer is 17-22 minutes!

Manner of mixing

The runoff technique was employed since this is the method commonly used in making casts for contour shoes.

Amount of plaster

Sufficient plaster to make a standard upper and lower cast of the foot.

Upper. The plaster covered the dorsum of the foot to a point 1" above the malleoli, and ½" in thickness. This was the same in all series.

Lower. Series A. Cast was 1" thick, 5" wide, 12" long. Series B. Cast was 1½" thick, 5" wide, 12" long.

Individuals casted

3 males and 3 females. Normal adults, vascularly and neurologically negative, no dermatologic lesions, skin tolerance to sensitivity average.

Type of cast

Two sections; upper and lower. The temperature of the lower cast only was taken during the experiments. The lower cast was applied first with the thermometer placed against the skin and in direct contact with both skin and plaster. The thermometer remained in place while the upper was made.

Thermometer used

Kodak dark room thermometer.

Tests

Series #1 Tap water, 70°F., slow mixing, no agitation.

Series #2 Cold water, 60°F., slow mixing, no agitation.

Series #3 Tap water, 70°F., 1 tablespoon NaCl, slow mixing, no agitation.

Series #4 Cold water, 60°F., 1 tablespoon NaCl, slow mixing, no agitation.

Series #5 Cold water, 60°F., 2 tablespoons NaCl, swift circular agitation for one minute.

Summary of Results of Experiments

1. The plaster of Paris set in from 17 to 25 minutes.
2. There was a distinct sense of coldness when a foot was first introduced into the plaster of Paris.
3. The feeling of coldness disappeared after 3 to 5 minutes.

4. After 7 minutes had elapsed, a feeling of warmth began. This sensation increased until the plaster completely sets. The rate of increase and the degree of increase changed with the introduction of various factors. The maximum heat produced was reached in each test at the setting point, from 17 to 25 minutes. The maximum of heat however was reached rather suddenly.
5. The heat is retained in the cast past the time of setting. It remained at maximum for about ten minutes past the setting time and then gradually decreased. The cast was removed 25 minutes after the plaster had set at which time the heat had reduced only 10 to 15 degrees below the maximum.
6. In Test #1, Series "A" there was a gradual increase in heat reaching a maximum of 90°F.
7. In Test #2, Series "A" there was a more rapid increase in the heat produced after 20 minutes and an increase in the maximum heat of between 2-3 degrees over Test #1 in the same series.
8. In Test #3, Series "A" there was a gradual rise in temperature reaching a maximum of 100°F.
9. In Test #4, Series "A" there was a gradual acceleration of heat for the first 20 minutes with a sudden increase after that time within the next ten minutes reaching a maximum of 104°F.
10. In Test #5, Series "A" the results were the same as in 9 excepting that the temperature reached a high of 124°F.
11. In five similar tests of Series "B" there was no appreciable difference in the production of heat nor in rate of increase over the Series "A."

Comment on Results of Experiments

1. The introduction of cold water 60°F. delayed hardening of the plaster of Paris until setting time. Then setting occurred very rapidly. This took place with increase in temperature of the cast of 2-3 degrees at the setting point.
2. The addition of salt decreased the setting time and increased the temperature up to 10 degrees.
3. The addition of cold water and salt produced sudden setting of the plaster of Paris at the setting time with maximum increase in temperatures up to 124°F. The addition of the cold water allowed for more time to work with the plaster before it set, but once setting took place, it occurred rapidly.
4. In all cases, erythema of the parts submerged in the plaster was produced.
5. Heat was still retained in the cast after it had been removed from the foot.

The tests show that certain factors tend to increase the production of heat while plaster of Paris is setting. The maximum temperature produced during the experiments was 124° F. whereas, at the minimum it rose to 91°F.

It now remained to be determined whether such an increase in temperature would be likely to produce deleterious effects upon tissue in diabetes mellitus and arteriosclerosis obliterans. The literature was scanned for skin temperatures of the toes and feet in normal as well as in those individuals with occlusive vascular diseases. Also to be determined, wherever possible, were the factors involved in vasodilatation and vasoconstriction, the factors having to do with heat loss, skin sensitivity, and the reaction of tissues with impaired circulation to the application of heat and cold.

The literature presents rather confusing information on skin temperatures in normal individuals. The problems involved in skin temperatures are difficult owing to many complicating features. Although skin temperatures vary in different individuals and in the same individuals from toe to toe, and from moment to moment, nevertheless an average temperature for parts of the feet has been determined[5].

TEST SERIES #1

* Tap water 70°F.
No NaCl; slow mix
No agitation

Minutes	Temperature	
	Ser. "A" 1" thick	Ser. "B" 1½" thick
0	70°F.	70°F.
3	70	70
5	72	72
8	73	73
10	74	74
13	76	76
15	78	78
18	80	80
20	82	81
23	84	84
25	86	87
28	88	88
30	90	91
33	90	91
35	89	89
38	88	86
40	85	81
45	80	81

*Average of six tests in each series.

TEST SERIES #2

* Cold water 60°F.
No NaCl; slow mix
No agitation

Minutes	Temperature	
	Ser. "A" 1" thick	Ser. "B" 1½" thick
0	60°F.	60°F.
3	60	60
5	61	61
8	62	62
10	63	63
13	65	66
15	67	67
18	70	70
20	74	73
23	78	77
25	83	83
28	88	89
30	92	92
33	90	91
35	90	90
38	88	88
40	85	86
45	80	81

*Average of six tests in each series.

TEST SERIES #3*

Tap water 70°F.
1 tablespoon NaCl
slow mix; no agitation

Minutes	Temperature	
	Ser. "A" 1" thick	Ser. "B" 1½" thick
0	72°F.	72°F.
3	72	72
5	73	73
8	74	74
10	78	78
13	80	81
15	83	84
18	89	89
20	91	92
23	95	95
25	97	98
28	98	99
30	100	101
33	100	101
35	97	97
38	96	95
40	94	90
45	90	90

*Average of six tests in each series.

TEST SERIES # 4*

Cold water 60°F.
1 tablespoon NaCl
slow mix; no agitation

Minutes	Temperature	
	Series "A" 1" thick	Series "B" 1½" thick
0	60°F.	60°F.
3	60	60
5	61	61
8	63	63
10	65	66
13	68	68
15	70	70
18	74	74
20	77	78
23	82	82
25	88	88
28	94	94
30	101	102
33	104	104
35	102	103
38	98	100
40	95	96
45	90	90

* Average of six tests in each series.

TEST SERIES #5*

Cold water 60°F.
2 tablespoon NaCl
Swift agitation 1 minute

Minutes	Temperature	
	Series "A" 1" thick	Series "B" 1½" thick
0	60°F.	60°F.
3	61	61
5	63	63
8	68	68
10	70	71
13	75	76
15	80	81
18	86	85
20	92	93
23	98	99
25	104	104
28	110	110
30	118	119
33	124	124
35	124	124
38	120	122
40	115	120
45	110	115

* Average of six tests in each series.

The highest skin temperatures are on the face and trunk, the lowest are on the extremities with the lower limbs several degrees less than the upper. Generally speaking, in persons with normal circulation at environmental temperatures of from 64.4°F. to 71.6°F. the temperature of the toes remains at or near the atmosphere and not, as so often believed by the laity, at body temperature.

As environmental temperatures increase, that of the toes and feet gradually rise. As environmental temperatures decrease, that of the toes and feet decrease also, however the reaction to increase in environmental temperature is greater than the reaction to decrease. This means that the body tends to throw off heat rapidly and will react to conserve heat.

Average skin temperatures of the foot range from 73.4°F. to 78.8°F. The skin temperature at room temperature ranges between 64.4°F. and 71.6°F. with the average at 68.0°F. Under standard environmental conditions with room temperature at 77.0°F. and humidity at 40%, the average temperature at the dorsum of the foot may be considered to be 75.2°F. and at the great toe at 68.0°F.

It is evident from the above data that the skin of the foot of the normal individual remains pretty much at room or environmental temperatures at all times.

In normal individuals it is determined that maximum vasodilatation of the toes occurs at 82.4°F. to 84.2°F. Following this any further heat loss in response to greater increase in temperature must occur through evaporation of moisture via profuse perspiration.

In those individuals with occlusive vascular diseases insufficient blood supply to the parts is the paramount problem. Vasodilatation over and above that which may be obtained by overcoming vasospasm in an abnormal vessel is all but impossible. Dilation of the normal vessels therefore is the aim of obtaining greater supply and anything which may or does interfere with this, must be strictly avoided. Much damage as a result of ischemia can be done in a relatively short period of time. And, so too, any factor which will induce vasoconstriction must be equally avoided.

Therefore if the temperature of the skin of such individuals should be brought, by any means, above 84.2°F. two things must be assumed to take place if the heat is to be dissipated. One, vasodilatation, and two, evaporation through profuse sweating. If vasodilatation cannot occur, heat dissipation will be interfered with and the heat will remain in the tissues. If sweating or the evaporation of perspiration is interfered with, the same result will ensue. Thus damage to the vascularly impaired patient may be likely under such circumstances at a lower degree of heat than if the parts could react normally. The higher the temperature in contact with the skin of such individuals, the greater is the likelihood of damage.

The fact that the average skin temperature of the person with occlusive vascular disease is not too much below the environmental temperature is no indication of the degree of impairment nor of the proximity of ulceration and gangrene. The fact that the toes may not be cold does not rule out imminent gangrene. The appearance of these states depends on the application of some form of trauma of physical, chemical or thermal nature. As Allen, Barker, and Hines[4] state it (Pg. 228, Peripheral Vascular Diseases) "In arteriosclerosis obliterans, a lower skin temperature in the foot or toes most affected by the disease can be detected . . . . The tissues, and particularly those of the toes of a diabetic person, are more sensitive to injury than a non-diabetic person. This is due to the poor circulation and to the poor healing."

The question of importance becomes, "What constitutes injury in these condi-

tions or under these circumstances," Quoting Allen, Barker, and Hines[4] again (Pg. 253) "Injury is the precipitating cause of most of the ulcerations and gangrenous conditions which develop in patients with arteriosclerosis obliterans and ischemia of the feet. The injury may be mechanical, chemical, or thermal. Very often it is of a minor nature and in retrospect could have been avoided. Extremities with poor circulation or arterial insufficiency are unusually susceptible to injury of even minor degrees of exposure to cold, heat, and chemical agents which would not affect extremities having a normal blood supply."

If minor changes in temperature, whether heat or cold, to the vascularly insufficient skin can be sufficient to instigate ulceration and gangrene, how much more aggravation is added when the temperature is raised well above a minor degree to beyond 84.2°F. where maximum vasodilatation occurs to as high as 115°F.; and where no evaporation of perspiration can take place owing to the physical presence of a plaster of Paris cast.

It is possible to reconstruct what occurs to the skin during the casting for the "contour shoe."

1. When the plaster of Paris is first applied to the foot a distinct sensation of coldness is felt. This is even more pronounced if ice water is employed. Vasoconstriction follows and in the patient with occlusive vascular disease, an already poor blood supply is further reduced. The effects of this upon the tissues need not be stressed. In these individuals the shock of the cold application may induce vasospasm, and then with the rather sudden onset of heat as the plaster of Paris sets, the damage may well be compounded.
2. It has been shown that a plaster of Paris cast upon the foot will generate maximum heat of from 70°F. to 115°F. and higher (Schuster, Richard O[2]; Miller, Jerome[3]), and that this heat reaches its maximum in a comparatively short period of time. This heat is sufficient to produce maximum vasodilatation and profuse sweating.
3. Since the cast is made in two sections, the heat will remain in contact with the skin throughout this entire period.
4. In the presence of occlusive vascular diseases, the induced vasodilatation may not be forthcoming, or if it is, then heat cannot be dissipated beyond 84.2°F. since the perspiration cannot evaporate. Thus much of the heat on the cast actually heats the tissues.
5. Increase in heat produces increased metabolism which calls for an increase in the blood supply.
6. The amount of blood in any part or reaching any part must be sufficient for its local metabolic needs otherwise ischemia or gangrene results.
7. If there should be a discrepancy between local tissue demands and the available blood supply, tissue damage takes place.
8. Since with diabetes mellitus and arteriosclerosis obliterans there is arterial insufficiency to begin with, the increase in heat which cannot be dissipated creates a demand which may not be met. This results in damage to tissues. In such individuals where there is a preexistent metabolic disturbance of tissues, there is interference with recovery to injury, even minor ones. The tissues of a diabetic patient are more sensitive to injury than a non-diabetic one. It is evident, and experience has shown, that traumata of a mild degree are sufficient to produce gangrene.
9. Heat over the maximum dilatory level of the vascular system in individuals with diabetes mellitus and arteriosclerosis obliterans is therefore dangerous and contraindicated.

10. Over and above the effects upon the circulation, direct trauma to the skin by the rough surfaces of the cast in contact with the foot as well as the injury attending the actual removal after the cast has set may be sufficient to damage tissue further. Often the skin must be pulled away or a hammer and chisel used to separate the upper and lower sections, or overlapping surfaces may injure by impinging on tissues, thus further irritating the skin of these individuals.

Summary

1. The increased use of "contour shoes" by the public without qualified supervision or control has created a distinct danger to the life and limb of individuals suffering with diabetes mellitus, arteriosclerosis obliterans as well as other occlusive vascular diseases, and those with neurologic disturbances which interfere with sensation.
2. Casts for these "contour shoes" are made by unqualified lay personnel without knowledge as to the damage possible to such individuals.
3. Experiments were performed to determine the manner and degree of heat produced by such casting procedures under pre-set conditions.
4. Results of such experiments indicate that a maximum of heat may range from 91°F to 115°F depending upon employment of certain factors known to increase the heat production of setting plaster of Paris.
5. Individuals with diabetes mellitus and arteriosclerosis obliterans do not have normal reacting tissues nor normal circulation. Increased heat even in a minor degree as well as the application of cold in a minor degree acts as trauma. If the increased heat cannot be dissipated, or if the tissues are not able to withstand the increased temperature, damage to them will inevitably result.
6. Minor damage to tissue is sufficient in such cases to produce ulceration and gangrene.
7. It is considered that the maximum temperatures produced by casting for the contour shoe plus the length of time this heat is in contact with the tissues and with the other traumatic factors which may be present, is sufficient to be considered traumatic.
8. Such increase in temperature could be sufficient to produce a "burn" in individuals with diabetes mellitus and arteriosclerosis obliterans.

Conclusion

1. Certain casting procedures which may be employed in making impressions for the "contour shoe" should not be used on patients suffering from diabetes mellitus and arteriosclerosis obliterans.
2. The indiscriminate casting of the public-at-large without medical or chiropodic supervision must be discontinued as a source of danger to the life and limb of the unsuspecting public.

450 Seventh Ave.

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All countries agree on the laws of physics. We may fight over the writings of Karl Marx—but not over those of Isaac Newton or Albert Einstein.

Science Digest

RADIOGRAPHIC EVALUATION OF CALCANEAL APOPHYSITIS

LEONARD H. LERNER, A.B., D.S.C.*
Cranston, R. I.

A group of disorders which commonly attack the osteogenetic or growth centers in childhood or adolescence have been the subject of much investigation in recent years. These diseases have not been without considerable interest to the profession of chiropody as many of them directly affect the lower extremity, especially the feet. In the past, ignorance in the similarity of their underlying pathology, as well as the varied descriptions given them by investigators, has led to a great deal of confusion over their terminology. Unfortunately, much of this older thought has permeated present day thinking, although, of late, a sincere attempt has been made to correlate the facts and classify these diseases under one heading.

Prominent among the names ascribed to these conditions have been the following — epiphysitis, osteochondrosis, osteochondropathy, osteochondrosis juvenilis, osteochondritis, aseptic necrosis, aseptic bone (osseous) necrosis, and also the proper names of the various discoverers of the condition in certain specialized or specific localities in the body. Thus when it affects the Tuberosity of the Tibia, it has been known as Osgood-Schlatter's Disease, and if the tarsal navicular is involved it has been called Koehler's Disease of the Navicular. Yater[41] classifies the condition as idiopathic epiphysitis, and Caffey[6] prefers the term focal aseptic necrosis. Yale[42] holds that a degenerative, non-inflammatory process of bone destruction is termed an osteosis, and accordingly describes the aseptic necroses as specific forms of spontaneous or idiopathic osteosis.

It appears that some of the terms applied are not entirely descriptive of the condition. Thus Sharp[36], in his excellent review of the problem, states that the term epiphysitis had been used since it was thought that the disease affected only the true epiphyses of bone. But this is not true, since both primary as well as secondary centers of ossification may be the site of the condition. The term osteochondritis appears to be incorrect since involvement of both the cartilage and bone is implied[9]. Doub[10] is of the belief that in most instances the cartilage is not involved in the process. The term aseptic necrosis also is not completely satisfactory since it is not absolutely certain today that infectious origin of the disease can be ruled out. Sharp observes that at the present time the most important single factor in the production of this disease is an interference, mechanical or otherwise, with the local blood supply to the involved bone. Thus he feels, as does Pease[29], that the most desirable term for this disorder is avascular necrosis.

Before proceeding with the true purpose of this paper — a radiographic appraisal of the specific form of this disorder affecting the secondary ossification center of the calcaneus, commonly called apophysitis of the calcaneus, — it would seem appropriate to at least briefly review the etiology, pathology, and symptomatology of these conditions in general, so that we may better understand the nature of its development.

Etiology

The causative factors that are responsible for these conditions have not been definitely established. Those that have been suggested all have their proponents, although final proof is still lacking in every case Among those considered by most authorities are the following:

1. Focal Infection

*Currently on active duty, U. S. Army Medical Service, assigned to the Podiatry-Chiropody Clinic, Orthopedic Service, Madigan Army Hospital, Tacoma, Washington.

2. Nutritional Disturbances
3. Congenital Vascular Anomalies
4. Endocrine Disorders
5. Trauma

The latter is the most favored explanation by most investigators since it appears to be present in the majority of cases, with the probability that some other as yet unknown factor may precede the injury. Sharp has described the nature of the trauma adequately as follows:

a) Acute trauma — a sudden, violent type that is remembered by the patient.
b) Chronic microtrauma — one that is insidious, and the result of repeated, subacute insults of which the child may not be actively aware until the condition becomes well advanced.
(1) Extrinsic microtrauma — especially of the 2nd metatarsal head, due to external, mild, mechanical insult when the forefoot strikes the ground.
(2) Intrinsic microtrauma — due to internal ligamentous and tendonous pull at their points of insertion into the perichondrium or periosteum which may envelop the bony unit at particular phases of development.

Caffey concurs that trauma, if not the irritating factor itself, at least plays a secondary casual role.

Pathology

Authorities are in general agreement that the disorder develops primarily from an interference in the vascular supply to the involved bone. Caffey states that local ischemia is the underlying pathogenic mechanism, while Sante[32] points out that the fundamental pathological process is the same in all locations in which it is found in the body. That is, a local nutritional disturbance due to disturbance of the blood supply with subsequent abnormal development of the bony structure.

Deprivation of blood results in localized bone death or necrosis, which in turn is followed by a reparative process assumed by the capillaries from the surrounding, unimpaired periosteum and endosteum of the medullary cavity.[35] Doub states that the pathological process probably involves actual death of the ossifying nucleus, followed by fragmentation, irregular absorption of the involved bone, and replacement by the so-called "creeping substitution" of Phemister[30] or recalcification. Steindler[38] maintains that, in contrast to inflammatory necrosis, which is always associated with a fibroblastic reaction and scar formation, aseptic or avascular necrosis results in a molecular absorption of dead bone and its gradual substitution by new bone.

Sante states that microscopic examination reveals a disturbance in chondral ossification and the bone becomes softened and undergoes quiet necrosis. At a later stage the necrotic tissue is broken down and replaced by new-formed osteoid bone.

During the transition, reparative stage, x-ray findings bear out the pathological picture. That is, the dead bone retains its original density since it has no blood supply to remove the opaque, mineral salts, while the adjacent living bone becomes decreased in density because of atrophy and shows up as a lighter shadow[35, 37] — Luck[23] observes that soon after the onset of necrosis, the neighboring bone elements develop an active hyperemia which becomes manifest by osteoporosis. Only now, he says, can this necrotic area be demarcated radiographically since it does not take part in osteoporosis and thus appears increased in density by contrast.

Symptomatology

The symptoms vary with the specific location of the disorder, but generally pain and impaired function are prominent. If present in the foot, limping is characteristic as well as some restricted joint motions. Objectively, the area involved is tender to palpation and occasionally some redness and swelling may be present. These may be ac-

counted for more by mechanical shoe irritation than by an infectious process. Basically, they are all self-limiting conditions.

Avascular Necrosis of the Calcaneal Apophysis

An apophysis has been described as any process, outgrowth, or swelling, especially a bony process, that has never been entirely separated from the bone of which it forms a part[9]. It also serves to increase the length of the bone as well as provide for attachment of muscles and tendons, but does not enter into the formation of a joint and is not covered by cartilage[21]. The latter distinguishes it from an epiphysis.

The condition of avascular necrosis which attacks the apophysis of the calcaneus, was first mentioned by Haglund in 1907[14, 28] and later by Sever[33] in 1912. Haglund mistook it for a fracture or a separation of the epiphysis from the metaphysis of the os calcis, while Sever described the disorder

Fig. 1. Left heel, symptomatic, white male, age 12.

as it is generally accepted today, and ascribed his name and the term apophysitis to it.

Radiographically, the condition has received varied descriptions from many sources, but little uniformity and still less agreement has been evident from a careful review of the literature. Hence, the purpose of this paper, — that is, to critically evaluate the radiological evidence at hand and endeavor to place it in proper perspective so as to enable the investigator to make an accurate diagnosis of the disorder.

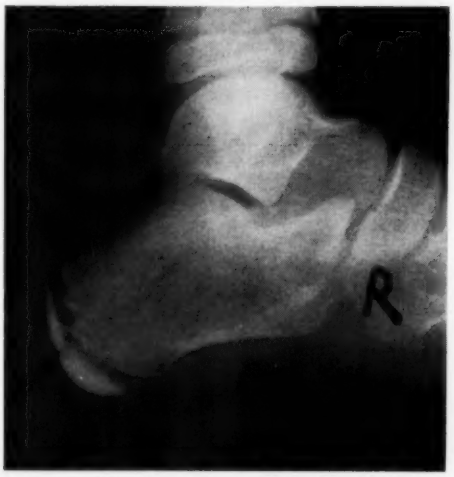

Fig. 2. Right heel same individual Asymptomatic.

Sante believes it to be a rather rare condition, and Yater refers to it as an uncommon condition. However, Pease believes it to be the third most common form of avascular necrosis in the foot. The other ones being those that involve the navicular and the second metatarsal head.

Meyerding and Stuck[28] found a total of slightly less than 40 cases recorded in the literature between 1912 and 1934, and they then proceeded to add 21 cases from the Mayo Clinic studies which gave a new figure of approximately 61 cases recorded through 1934. Simon and Williamson[37] added 2 more cases in 1939. Since then many cases have no doubt gone unrecorded, and probably an appreciable number have likewise gone untreated.

Sharp believes that it occurs most frequently between the ages of 8 and 15 years, primarily affecting active boys between 9

TABLE I
Radiologic Findings

Evidence Reported	Author References
1. Enlargement of the epiphysis.	20, 21, 32
2. Flattening of the epiphysis.	1, 15, 27, 1, 12
3. Subchondral bone destruction or absorption of the epiphysis.	5, 8, 17, 18, 19, 23, 24, 36, 41
4. Increased density of the shadow of the epiphysis.	8, 11, 15, 17, 20, 21, 23, 24
5. Irregularity of the epiphysis.	25, 27, 28, 33, 41
6. Fluffy appearance of the epiphysis.	12, 15, 18, 24, 31, 36
7. Segmentation and fragmentation of the epiphysis.	1, 5, 7, 8, 12, 15, 17, 19, 21, 23, 25, 27, 31, 33, 36
8. Worm-eaten, wavy appearance of the epiphysis.	15, 24
9. Fracture of the epiphysis.	14
10. Calcareous deposits in the lower part of the epiphysis.	11
11. Displacement of the epiphysis up and back.	11
12. Abnormal gap between the epiphysis and the body of the os calcis.	11, 14, 17, 23, 24, 41
13. Considerable cloudiness along the epiphyseal line between the affected epiphysis and os calcis.	15, 17, 20, 21, 27, 32
14. Unusual irregularity of the adjacent posterior surface of the body of the os calcis.	12, 15, 18, 19, 25, 27, 31
15. Areas of rarefraction in the metaphysis.	5
16. Irregular areas of increased density in the epiphysis.	32
17. Smaller epiphysis than normal.	24

and 13 years, while Yater stresses the 5 to 10 age level.

It is the result of two factors, both intrinsic and extrinsic microtrauma[35]. The former from tension on the posterior aspect of the calcaneus by the tendo achillis, and the latter from constant pressure upon the part as the result of weight bearing. The foot therefore will frequently be held in the position of greatest comfort, that is, mild equinus, since pain is usually increased when the foot is flexed and the tendo achillis put under stretch.

Radiological Findings

The typical x-ray evidence reported in the literature describing avascular necrosis of the calcaneal apophysis is collected in Table 1. It will be noted that there is a considerable amount of overlapping of opinion as well as much disagreement among the authorities as to which signs definitely characterize and establish the diagnosis of the condition.

Discussion

Lack of adequate correlation between the x-ray findings and the clinical picture has been noted for some time by a number of investigators.

Caffey stresses the importance of normal anatomic variants in bone development which closely simulate the destructive and productive lesions caused by disease. And he points out that the diagnostician must be familiar with the sites of these physiologic variants, their character, and the age of their appearance and disappearance if he is to evaluate films correctly and if he is not to give children diseases which they do not have.

He feels convinced that many of the so-called cases of infantile and juvenile osteochondrosis or osteochondritis described in the literature are actually of unrecognized and wrongly interpretated normal variations in the bones rather than ischemic necrosis.

Important in the study of calcaneal apophysitis are these normal variations which he says show up in roentgen examination:

a) Normal roughening or jagged appear-

ance of the posterior surface and borders of the body of the calcaneus after the first few months of life.

b) Normal irregularities in density during early phases of ossification due to irregular focal mineralization.

c) Normal sclerosis of the apophysis during all phases of its development.

d) Normal fragmentation and irregularity of the apophysis in the early phases of its development.

He therefore concludes that roentgen diagnosis of apophysitis on the basis of the osseous findings is always uncertain, and must only be made with extreme caution. Usually a conclusive roentgen diagnosis can be made only by demonstration of progressive destruction in serial films.

Hughes[17] reported on this condition after first surveying a large series of x-rays to establish the variations in this region n normal children. And he then studied roentgenograms of 23 children (17 boys and 6 girls) that sought treatment for painful heels, 16 with bilateral symptoms. The ages varied from 6 to 14 years.

He takes exception to the reports of the older literature which suggests that the diagnosis of osteochondrosis of the epiphysis of the os calcis depends on radiological signs. He rather contends that there is no uniformity of opinion as to what may be regarded as the typical x-ray appearances. These radiological signs have described the epiphysis, the epiphyseal line, and the metaphysis as well and have been presented above.

He is in a good deal of accord with Caffey on the normal variations in this area. It is his belief that:

a) The epiphysis is usually denser than the body of the os calcis.

b) Segmentation of the ossifying area into two or more segments is not uncommon; probably so since it ossifies from multiple centers.

c) The edge of the epiphyseal ossification may be well defined or may be irregular and fluffy.

d) During the 9th year the lower lateral edges of the epiphysis curve forward and obscure the previous radiolucent epiphyseal line. This line is completely obliterated at the 15th to 16th years.

He also holds that the intersection of trabeculae radiating posteriorly from the subastragaloid joint and from near the anterior end of the plantar surface of the os calcis leads to the irregularity of its posterior margin. These irregularities together with the overlapping edges of the epiphyseal ossification and the arrangement of the bony trabeculae result in areas of apparent rarefaction and density of the metaphysis.

The x-ray films of the 23 symptomatic cases when studied in conjunction with the normal series disclosed no marked pathological features. They all presented a wide variety of appearances. These ranged from what appeared to be an enlarged or flattened, or irregular, or segmented, or fluffy and mottled picture of the epiphysis, to a cloudy epiphyseal line that was united to the irregular metaphysis.

Hughes feels that in the absence of any other apparent cause for painful heels, over the years investigators had followed the example set by Sever when he first reported on 5 cases of apophysitis of the os calcis that he compared to Osgood-Schlatters Disease. He maintains that the age period is not characteristic since a painful heel is not uncommon at any age, and also that there is a lack of any histological proof of the disease. Furthermore, follow-up examinations failed to reveal any residual anatomical abnormality in the heel, clinically or roentgenologically, despite the fact that pain sometimes persisted after fusion of the epiphysis and diaphysis.

He does state, however, that the epiphysis may be involved in juxta-epiphyseal affections of the os calcis, such as tuberculosis, though the x-ray appearances of this condition are not comparable with those found in painful adolescent heels.

Hughes was then able to come to only

one conclusion. That is, there is insufficient proof that osteochondrosis or epiphysitis (apophysis) is even the underlying cause of adolescent painful heels.

Sharp concludes his discussion on apophysitis by stating that irregular mineralization of bone is a normal finding in childhood. Therefore, because of this factor, one must not be too hasty in the diagnosis of avascular necrosis, since what may appear to be this condition on x-ray examination of the area, may actually be normal irregular mineralization of the bone in question. He strongly suggests that a good rule to follow is: Do not diagnose or treat a condition as avascular necrosis on the basis of x-ray findings alone. In the true condition, the x-ray picture must be supplemented by adequate clinical symptoms as well.

Rhine and Locke[31] described 18 cases of children whose main complaint was that of pain in the heel. There were 10 boys and 8 girls in the series. The boys ranged from 9 to 15 years of age, and the girls from 8½ to 11 years.

The symptoms were present for a period varying from a few days to as much as 3 years before professional care was sought. Those who delayed seeking care complained of intermittent symptomatology.

The authors felt that the numerous "typical radiographic criteria" described in the literature for diagnosing the condition were not strongly correlative with the clinical findings. In order to verify this belief, they studied the radiographs of the 18 cases diagnosed as apophysitis for the factors most frequently mentioned as having diagnostic significance. At the same time they reviewed a similar group of x-rays of 9 children of the same age group without heel pain for the same factors. All the radiographs were studied without any identification as to whether they were symptomatic heels or not. The 6 factors under study were irregularity of the epiphyseal line, condensation, rarefaction, fragmentation, irregularity of the adjacent calcaneus, and clouding of the epiphyseal line.

The data upon analysis revealed that it was difficult to tell by radiographic examination alone which heel is the symptomatic one as it was noted that these possessed the most pronounced radiographic findings in only about half of the cases. Also that in the non-symptomatic heels, there was sufficient radiographic evidence to consider (erroneously) 13 of the 18 apophyses to be pathologic.

These results led the authors to conclude that the diagnosis of apophysitis of the calcaneus should be based largely on the history and the physical findings, because the radiographic findings may not correlate with the clinical findings.

Another authority who admits to some skepticism is Brailsford[3]. He observes that as the ossification of the apophysis begins in two or more nuclei, the appearance of the normal may be mistaken for that of osteochondritis.

Pease follows by saying that the x-ray film may often appear to show extensive destructive processes while clinically the objective findings may be minimal. He therefore advocates the maxim — treat the child and not the x-rays.

Tax[40] discusses this disorder extensively. He states that the apophysis of the os calcis usually develops from two centers, and the margins are usually rough and irregular. Almost any epiphyseal center or tarsal bone may ossify from multiple fine foci in the earliest stage of its development. As development proceeds, these fine foci usually fuse. Care then must be taken not to confuse irregular ossification with osteochondrosis juvenilis.

On ossification of the apophysis he points out that the epiphyseal lines are usually ragged and often poorly defined. The trabeculae in the epiphysis seem to run parallel to the surface and they also may be poorly defined.

After studying 150 x-ray plates of heels of children in the age group of 5 to 10 years, he maintains that the mineralization of normally developing epiphyses of the os

calcis in no wise differs from the heel bones of children complaining of heel pains and who have clinical symptoms of apophysitis.

Thus he is forced to conclude that it is practically impossible to differentiate focal aseptic necrosis of the os calcis from a normally developing heel bone on an x-ray film. And that a definite diagnosis from an x-ray study alone cannot be made. Rather the radiograph must be considered in making the diagnosis but without a complete clinical history, it is of no value other than to differentiate it from other diseases occurring at this site.

Yale briefly describes the radiograph findings reported in the literature, and then goes on to state that usually there are no significantly important radiographic findings.

Lewis[24] is not as firm as some of the previous investigators, yet he states that roentgenographs taken in the lateral projection which demonstrate separation, irregularity, segmentation, or fragmentation of the calcaneal epiphysis with areas of greater density, usually bilateral, will confirm the diagnosis only if it is based on clinical evidence.

Hauser[16] casts some doubt on the problem even though he initially maintains that the roentgenograms show the characteristic changes described earlier. He seems to follow the line of thought set forth in the literature, yet he finds it necessary to say that, curiously, the changes may be greater in the foot that is symptom-free, rather than in the foot that is symptomatic.

After first describing the characteristic x-ray findings, Lewin[22] pointed out in 1925 that more roentgenological observations must be made on the normal or symptomless heels of children between 6 and 16 before accurate statements can be made about pathological heels. It is evident, he says, that differential diagnosis of this disorder from others that may occur in the same area. These include achillobursitis, tenosynovitis, bursitis, (between the tendo achillis and the skin), calcaneal spur, tuberculosis, pyogenic infection, syphilis, fracture, and rheumatic and scarlet fevers.

Bergmann[2] in 1930 found that in a large series of cases the "characteristic" roentgenographic changes of apophysitis were present when symptoms were completely absent.

And Meyerding and Stuck though completely in accord with the value given to the radiologic signs, sound a note of cautious skepticism, unintentional though it may be, when they go on to say that the failure to recognize destructive change in the epiphyses of the heels of young, vigorous children depends on the absence of symptoms and the consequent neglect in obtaining roentgenograms.

Shanks[35] notes that the normal, apophyseal ossification may be markedly multinucleate and appear to be irregular in consequence. The association of anatomical irregularity with "painful heel" does not therefore justify a diagnosis of osteochondritis without a careful serial examination.

Bronston[4] states in 1933 that the posterior contour of the calcaneus at its junction with its apophysis appears normally to be wavy, irregular, indented, and ridged. Also that the apophysis is often segmented, ossified irregularly, and is irregular in density. And that the contour of the os calcis is correspondingly ridged, indented, and wavy in the normal state.

Meschan[27] is of the opinion that the calcaneal apophysis tends to be somewhat more compact than that of most epiphyses, and any interpretations of abnormality in this epiphysis, either with regard to its irregularity or its density, must be entertained with considerable caution.

And lastly, based on evidence obtained by radiographical, pathological, and histological investigations in normal persons, Toniolo[39] shows that the subject of apophysitis or metaphyseal osteodystrophy of the calcaneus has been founded on wrong pathological suppositions. It does, in fact, not exist as a pathological entity. He holds that the radiologic signs commonly

described as indicating pathologic involvement of the posterior ossification center of the os calcis are really normal variants in the osteogenesis of this growth center.

This center differs uniquely from the epiphyseal nuclei of the long bones. There is considerable difference in the time of appearance between the two sides, and also in the normal appearance of radiographically evident calcific granules. These granules are noted to vary from 2 to 7 in number and are arranged coronally around the inferoposterior border of the calcaneal metaphysis. It is the individual and irregular behavior of this metaphyseal zone that is characteristic of this growth center between 8 and 13 years of age.

He also studied several hundred radiograms on the relation of this nucleus of ossification to the possibility of bone formation in the tendo achillis. Soft tissue studies showed that these calcific granules are present within the tendon. Thus he is led to report that the bone grows inside of the tendon without completely filling it and therefore this ossification center originated from mesenchymatous tissue instead of in endochondrium as formerly supposed. Ossification occurs here as it does in the case of other sesamoids.

Since it is basically intratendinous and typically connective tissue in origin, he is of the opinion that juvenile osteochondrodystrophy cannot exist in this region since the disease involves growth cartilage which is absent in its developmental process.

Summary

The early history of roentgenology propagated the concept of its individuality and self-sufficiency. This concept has now been outmoded, with the possible exception of its use in acute, traumatic conditions. Realizing this full well, the author has undertaken this appraisal of the radiological evidence dealing with avascular necrosis of the calcaneal apophysis in the light of more recent knowledge. The overall objective of the study being one that will, it is hoped, impress upon the professions of medicine and chiropody, the paramount need for close correlation between clinical and pathological relationships to strengthen diagnostic points of the roentgenogram.

It is apparent from a review of the literature on the subject that there is much doubt cast upon the value of x-rays in establishing a diagnosis of calcaneal apophysitis. It appears rather, that many authorities rely more heavily on the history and clinical evidence at hand for the diagnosis, and use the x-ray only as a means of serial study on the progress of the condition. Others discount the radiogram entirely as they feel normal variations in the bony architecture of this area grossly misleading. Several of the older reports stressing the important diagnostic value of the radiological findings are even prone to state that asymptomatic heels have often been accepted as being pathologic on the basis of the x-ray alone. And indeed, there are two investigators who feel qualified to state that the condition does not exist as a pathological entity and instead attribute the heel pain to some other not apparent disorder.

Conclusions

1. An up to date review of literature pertaining to calcaneal apophysitis has been presented.
2. The "typical" radiological findings in this condition are discounted on the basis of newer knowledge.
3. The normal anatomic variations in the ossification of the calcaneal metaphysis and apophysis have been described.
4. It is felt that these normal variants have been mistakenly described by the older radiological data.
5. The importance of adequate history and clinical findings is stressed in making the diagnosis over and above any radiological evidence.

6. Differential diagnosis of the disorder should be carefully considered. It should be distinguished from achillobursitis, tenosynovitis, bursitis between the tendo achillis and the skin, rheumatic arthritis, calcaneal spur, tuberculosis, pyogenic infection, syphilis, fracture, rheumatic fever and scarlet fever.
7. The actual non-existence of the condition should be taken into account in view of more recent studies and other heel conditions.
8. The advice — "treat the child and not the x-rays" should be well heeded by all.

89 Sunset Terrace

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SOME COMMENTS ON METATARSALGIA

HAROLD WEINER, POD.D.
Brooklyn, N. Y.

Primitively, physiological functioning of the foot demanded that the foot act on a slightly yielding surface thus accounting for the excellent architecture of the foot. With limited traumatizing surfaces to walk on, the foot performs its work in a fine mechanical routine. In normal gait the body is thrust forward, with the weight of the body being transferred down through to the metatarsals from the base articulations and then through the heads of the four lesser metatarsals.

The prime function of the metatarsal region is to afford stability in locomotion, to give spring and resilience to the step, and relieve the spine and central nervous system of jarring. The anatomy of the metatarsals as such, protects nerves, vessels, tendons, ligaments and the sole of the foot from injury.

As a basis for this presentation, let us review the metatarsal area of the foot. It is composed of five metatarsal bones, which are classified as long bones, each having a shaft, a base posteriorly and head anteriorly. Anteriorly, these bones articulate with the phalanges, which are also classified as long bones with the same anatomical features. The metatarsals form a dome-shaped structure.

Pains as a rule, are most common in the second, first, third, fourth and fifth metatarsal heads in that order. Only a very small percentage of these sufferers find their way into professional offices for care. The greater number seek relief in shoe stores by the purchase of shoes or the purchase of commercial foot appliances. Many are greatly relieved by the new shoes or appliances. A great many are not relieved and as a last resort, professional aid of the physician, orthopedic surgeon or foot specialist is sought.

Foot pain due to mechanical disorders is an affliction seen very commonly today. Over 90% of foot sufferers with mechanical disturbances appear with complaints in the forefoot. This is usually concentrated at bone articulations. More specifically these pains affect the metatarsal area.

Some of the causes of metatarsal disturbances are obesity, faulty footgear, heredity, change in occupation, occupation, systemic disturbances and long periods of bed confinement. One or a combination of these factors which leads to excessive stress on the metatarsals may be the cause of pain in this area.

Symptoms are pain, on walking, resting or when digital pressure is applied. The pain may be at the site of the metatarsal heads or may radiate anteriorly and / or posteriorly. Swelling may be present, cramping occurs but is most frequent during the night, spasm may be persistent and active and passive motions are restricted.

Treatments consist, as a rule, of proper shoes, sufficiently long hose, felt paddings to relieve and balance, strappings to prevent foot elongation, shoe modifications, passive and active exercise and the use of physical modalities of choice. Some use a combination of the above-mentioned in order to obtain a satisfactory result.

In recent years the journals have been flooded with literature referred to as Balance Therapy. I have read and reread these sincere contributions but I find no apparent conclusion. If a metatarsal is raised ¼" the effect on the foot varies, depending on the shoe the patient is wearing. A basic fundamental in foot function is apparently being overlooked here.

One of the most valuable measures over the years for relieving painful areas in the metatarsals has been the skillful use of felt

paddings. The prime functions of this padding is to support the shaft of the metatarsal and relieve pressure on the metatarsal heads.

Routine therapy of a skived felt pad of various thickness placed behind the heads of the second, third and fourth and between the first and fifth metatarsals has been only moderately successful (Fig. 1, right). Failures result in that this pad supports the shafts of the metatarsal, but does not cushion the metatarsal heads. This has been overcome by a modification of the traditional felt pad (Weiner Pad, Fig. 1, left). The principle of the pad is to cover as much surface as possible so that the felt may cushion as much of the painful areas as possible.

Fig. 1. Left (Weiner Pad), a modification of the traditional metatarsal pad (right).

The Weiner Pad is much longer and wider than any conventional felt metatarsal pad usually used. The pad extends from the interdigital spaces, shaped to the contour of this area of the foot and extends posteriorly to the base of the metatarsals. It covers all the metatarsal heads. Its high point is immediately behind all five metatarsal heads and has a long bevel extending to the interphalangeal spaces. The long bevel is a buffer to prevent trauma in contrast to the routine pad as it is used. Please note that the pad is placed with the unskived smooth surface to the foot. This procedure is employed conjunctively with other therapy customarily used, every four days. The subjective symptoms must be relieved.

Once having the subjective symptoms relieved, we can consider permanent effective measures for relief. For this we resort to basic fundamentals:

1. Man was never intended to wear shoes.
2. It was never intended that man live in a modern civilization as presently exists with hard unyielding surfaces to walk on.
3. The foot was intended to be used as a grasping organ.

If the right shoes were worn then man would suffer much fewer discomforts in this part of the foot. Thus I ask myself the question, "What is the right shoe?" And a number of answers are offered. Professionally, for a time, I felt that a "right shoe" was an oxford, broad heeled, wide toed and had five or six eyelets. This poses the situation of most persons who have worn shoes with these modifications for over 25 years and now find themselves worse off than ever. Therefore, I have had to discard this as a "right shoe."

Fig. 2. The author's concept of a "right shoe".

Commercial ventures consider a shoe "right" when the customer advises that the shoe is comfortable in the store. The recent advent of the moulded type shoe must now also be considered. I have heard some exceptional successes from professional and lay people and I have also heard to the contrary.

Personally, I cannot accept moulded shoes as the "right shoe" for they fail to comply with my concept of basic fundamentals. For one, this shoe places the foot in a static position whether cast in a sitting or standing position or if even made dynamically. Secondly, no shoe that has a closed front can be considered correct, for it interferes with the "grasping" action necessary for normal function. The sandal model in this type shoe approaches a correct scientific shoe but the procedures usually used are not necessary to accomplish the same results. As for the success of the moulded shoe, it can easily be evaluated. It certainly yields a better shape for the foot than any stock shoe heretofore made. Its thick soft sole acts as a shock absorber, which is a fundamental essential in a modern environment.

The "right shoe" must be light in weight. It must have a thick sole, and it must be wedged on a single plane from heel to toes. It has to be open in the front so that there is absolute freedom of motion and it must be attached to the foot. For this we must use a strap and not an oxford, (Fig. 2). The strap locks the foot into the shoe whereas an oxford type just attaches the shoe to the foot. The shoe does not have to have "arch support" for man was not intended to have the arch supported in propelling the body. This type of shoe is seen in most stores during the summer period but has proved most useful in giving permanent foot comfort all year round. In a period of three years I have numbered very few failures but these I feel were not due to the procedure but to impatience of or lack of acceptance by the patient.

Conclusions:

1. The metatarsal area of the human foot has been described, and the frequency of pain in this area has been pointed out.
2. A new type pad for relief of pain in these areas has been described.
3. Moulded shoes have been partially evaluated.
4. Some fundamentals have been pointed out.
5. A simple idea of a "right shoe" has been presented.

One Nevins Street

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From the Alpha Kappa Kappa Centaur:

"If you want to kill any idea in the world today, get a committee working on it. . . . "

C. F. Kettering

CLINICALLY SPEAKING

A place for the more informal presentation of reminders, suggestions, notes, observations and technics of value in office practice. Your contributions of short manuscripts or illustrative case histories will determine this section's usefuiness.

TENOTOMY AS AN AID IN ORTHODIGITA

SOLOMON GOLDHIRSCH, Pod.D.
Forest Hills, N. Y.

PRACTITIONERS who are confronted with orthodigital lesions may overcome these problems quickly and efficiently by performing a simple surgical procedure—the tenotomy.

Indications: Tenotomy may be successfully performed for a variety of reasons: 1, Hammer toe; 2, Painful dorsal HD; 3, Distal HD; 4, Heloma molle; 5, Claw toes; 6, Overlapping toes; 7, Contracted toes.

The reason that tenotomy relieves the above-mentioned conditions is that we change the position of a toe with relation to other toes and to the foot in general. For example, if tenotomy be done on a toe that is contracted and has on its dorsum a painful heloma, we can easily eliminate it by altering the position of the toe with respect to the upper of the shoe. The toe is no longer in close contact with the footgear and the excrescence involutes.

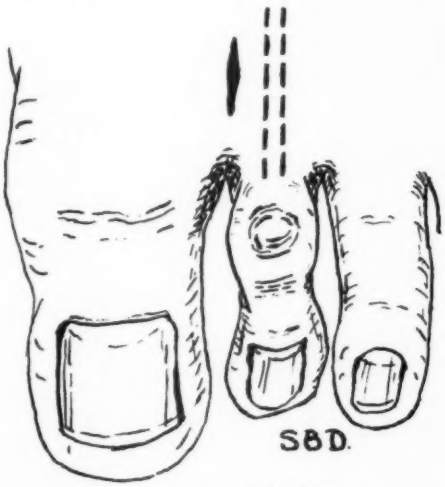

Fig. 1. Site of incision.

Technique: The actual procedure is simple. Assume that the 2nd dorsal tendon is to be divided. Follow these simple steps:

1. Inject about ¼ cc of 2% Xylocaine®[1], 1: 100,000 epinephrine into the first intermetatarsal space.
2. Withdraw needle and raise a wheal in the skin with another 1/8th cc of the anesthetic.

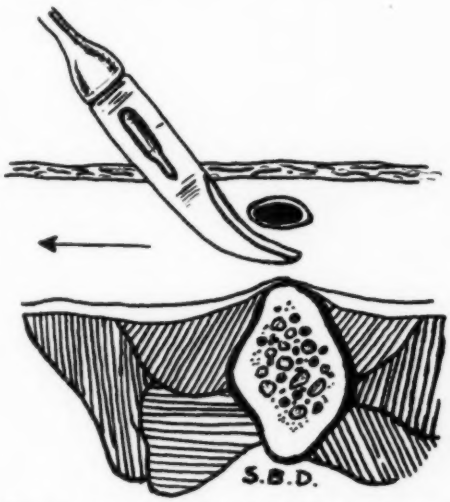

Fig. 2. No. 12 hooked blade in position to encompass tendon. Arrow indicates direction of pull on blade to sever tendon.

3. Using a hook-shaped knife (No. 12 blade) make an incision through the wheal about 3/8" long. (Fig. 1.)
4. Insert blade through the incision and hook curved portion of blade against tendon. (See Fig. 2.)

®[1] Xylocaine (Astra Pharmacal Co.)

5. Flex toe so that the tendon is under tension.
6. Cut tendon by pulling knife in direction of 1st toe.
7. Usually there is a popping sound and a sudden plantarflexion of the toe. This indicates that the tendon has been divided.
8. Place pressure bandage over operated area to help prevent formation of a hematoma. However, this rarely occurs.

The entire surgical procedure including administration of anesthesia should not take more than 3 or 4 minutes.

The importance of after-care must be strongly emphasized. If this is not adhered to, a failure may result. The underlying principle of after-care is the maintenance of the toe in plantarflexion for at least three weeks.

The reason that the toe must be kept strapped down in overcorrected plantarflexion is that repair of tendon takes place immediately upon being cut. If the divided ends of the tendon are allowed to unite prematurely, then we are again confronted with the original lesion.

Surrounding each tendon is a layer of areolar tissue — the peritendineum — from which septa run into the tendinous tissue, dividing it into bundles of fibres. Under the microscope the dense fibres appear wavy and anastomose more or less with each other. Among the fibres are specialized cells which on longitudinal section appear oval or rectangular, but which on cross section are star-shaped and united to other similar cells by fine processes. When a tendon is divided, its cut ends draw apart. As the divided surfaces retract, the peritendineum projects beyond and folds over them. The usual exudate and perhaps some blood is poured into the gap, filling the meshes of the peritendineum but penetrating little into the tendon itself. A very early and rapid proliferation of granulation tissues replaces the exudate and soon forms a spindle shaped swelling, much resembling a callus, about the cut ends. In this area, intracellular fibrils appear earlier and in much greater numbers than in ordinary granulation tissue, a result apparently of the specific character of the peritendineum and of the connective tissue septa of the tendon from which repair proceeds. The new tissue rapidly takes on an avascular tendinous character. In small tendons, healing is complete in about two weeks. However, it is strongly recommended that the divided ends be kept apart for about three weeks by plantarflexion of the toe.

Case Histories

I will describe two particular cases in which tenotomy served as a major help in eliminating foot pathology.

Case No. 1. M. K., a young man whose job keeps him constantly on his feet, presented a contracted second toe of the left foot. On the dorsum of the toe there was a large painful heloma. On the plantar surface, under the head of the second metatarsal, there was also a large painful heloma. Surgery involved excision of the dorsal excrescence under which a fibrotic bursa was found. Tenotomy was performed on the second tendon, thus dropping the toe below the level of the first and third toes. The plantar heloma was softened with 40% salicylic acid ointment. When the pressure on the head of the second metatarsal was relieved, the plantar lesion tended to disappear. Patient was made to wear thick-soled shoes. All symptoms disappeared.

Case No. 2. B. P., a young lady had had a hallux valgus operation performed for cosmetic reasons. X-ray studies showed that one-half of the proximal phalanx was excised. This left the big toe considerably shortened and in a contracted position. An excrescence formed on the dorsum of the toe. Tenotomy was performed on the ex-

tensor hallucis longus tendon. The great toe dropped down and lengthened about ¼ of an inch. Overcorrection was maintained by strapping a piece of ⅛" felt to the entire dorsum of the big toe. This was sufficient to prevent premature approximation of the divided ends of the tendon.

71-11 Austin St.

MOSAIC VERRUCAE: A CASE REPORT

LEONARD J. ANGELO, D.S.C.
PAUL MASSIK, M.D.
Quincy, Mass.

Mosaic warts are a type of plantar verrucae which are apt to grow very large, occur especially on pressure points, be troublesome, and respond poorly to the usual therapy, including x-ray and radium.

Report of case: E. M., an eighteen (18) year old female student had two large warts. The larger covered the entire plantar surface of the heel of the left foot measuring 5 x 6½ cm. in diameter. The other covered the lateral aspect of the heel of the other foot measuring 2 x 5 cm. They had been present for four months. Following treatment with salicylic acid in Tincture of Benzoine they were exquisitely tender. The lesions were ringed with lead to protect the normal skin and given 420r of superficial unfiltered x-ray therapy to each lesion. The next week because the foot was still tender and swollen the patient was referred to one of the authors (L. J. A.). He suggested coating with castor oil in the A.M. and P.M. and daily soaks of tincture of green soap solution followed by brisk scrubbing with a stiff brush. In one week the pain and inflammation was gone. 210r of x-ray therapy was given to each lesion. The next week 315r of x-ray therapy was given. In five weeks the lesions were almost completely gone and the skin was smooth and clear. A final visit ten weeks later showed no residual lesions.

Discussion: The use of castor oil is an old remedy rarely used now. Its use in this case with protective "doughnut" and other pads, enabled the patient to carry on while the therapy rid her of the warts. X-ray therapy is generally ineffective in treatment of mosaic warts but because of the difficulty in treating these lesions it was employed as a supplement. The dose administered was low, possibly too low to effect this type of wart. However, small doses of x-ray will often cure warts in younger people.

Summary: A case of mosaic warts is described. The patient was treated with a combination of castor oil, soaks, scrubbing with a stiff brush, and x-ray therapy. The result was excellent.

67 Coddington Street

For every ailment under the sun,
There is a remedy, or there is none;
If there be one, try to find it;
If there be none, never mind it.

Submitted by Melvin A. Blair, D.S.C.
Savannah, Georgia

JOURNAL

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A. RUBIN, D.S.C., *Editor*

FRANKLIN R. FIELDING, B.S., B.S.A., M.F., *Business Manager*

Address all communications intended for publication, matter relating to advertising, business or subscriptions to the above address.

PRELIMINARY REPORT ANNUAL MEETING 1957

The major action of the House of Delegates at the August, 1957 annual meeting was the adoption of a constitutional amendment making possible the changing of the Association's name to the American Podiatry Association.

Other constitutional changes adopted were:

1. A permanent constitution and by-laws committee composed of three members appointed for overlapping three-year terms.
2. Changing the Committee on Technical Developments to the Committee on Scientific Exhibits.
3. Raising the annual per capita membership assessment from twenty to thirty dollars.

Dr. Jonas C. Morris, Audubon, New Jersey, assumed the office of President from Dr. Felton O. Gamble, Tucson, Arizona.

Dr. George E. Guenzler, Freeport, Illinois, was elected President-Elect. Dr. Marvin W. Shapiro, Toledo, Ohio, and Dr. M. D. Marr, Cedar Rapids, Iowa, were elected Vice Presidents. Dr. Alec C. Levin, Washington, D. C., was reelected and Dr. Earl G. Kaplan, Detroit, Michigan, was elected to the Executive Council.

Dr. Phillip R. Brachman, Chicago, Illinois, was elected to the Council on Education. The appointments of Dr. E. Wirt Dobbs, Houston, Texas, of the Federation of Chiropody Boards, and Dr. E. P. Durkin, Chicago, Illinois, of the American Association of Colleges of Chiropody, were approved by the House of Delegates for one- and three-year terms, respectively.

Dr. Lester A. Walsh, Midland, Texas, was reelected and Dr. J. F. McGaurran, Westerly, Rhode Island, was elected to the Board of Trustees of the American Foot Health Foundation.

Announcement of the awards in the William J. Stickel Annual Awards for Research in Chiropody, was made as follows:

First Award, Dr. Oscar Scheimer, Westwood, New Jersey. Second Award, Dr. Milton Henenfeld, New York, New York. Third and Fourth Awards (tie), Dr. Lawrence Frost, Monroe, Michigan, and Dr. Frank Weinstein, Edmonton, Alta., Canada. Fifth Award, Dr. Joseph R. Cinzio, Passaic, New Jersey. Honorable Mention, Dr. Irving Yale, Ansonia, Connecticut, and Dr. Sidney C. Sivitz, Lewiston, Pennsylvania.

Dr. C. D. Bossart, Pittsburgh, Pennsylvania, and Dr. Milton Henenfeld, New York, New York, received, respectively, the first and second awards in the Drew Awards for Research on Shoes.

The following were announced as Best of Class of the Scientific Exhibits:

Organizational, American Society of Chiropodical Roentgenologists.
Research, American College of Foot Orthopedists.
Originality, Dr. Curry L. Meyer, Galesburg, Illinois.
Individual, Dr. Raymond K. Locke, Englewood, New Jersey.
Schools, Illinois College of Chiropody and Foot Surgery.

The 1957 Annual Meeting was the best attended annual meeting to date and the House of Delegates had the largest number of accredited delegates and alternates.

PRESIDENT'S ADDRESS

Tonight I stand on the other side of the fence. For twenty-five years I have sweated through those moments before the featured speaker addressed our distinguished group. I assure you that I will not take advantage of your kindness in waiting to hear me, nor try your patience. I am most cognizant of the dignity and prestige that my office holds. Therefore, ladies and gentlemen, for the next few moments only, will I use this privilege to offer you my philosophy of the office of President and outline to you some of our program for the coming year.

The office of President is a threefold position:

1. Presiding officer of the House of Delegates.
2. Presiding officer of the Executive Council.
3. Spokesman to the public for the profession and the members at large.

My opportunity to implement this philosophy has now arrived. As your spokesman, I will present your views at all public and professional gatherings, where given the opportunity. There shall be two major purposes in this:

1. To augment the flow of information to the public regarding our activities and to advise people of the contributions we can make to their efforts. These

people are part of commerce, industry, labor, public health and health professions, federal, state and local governments and all public and private professional lay, and service groups.

2. To help disseminate foot health information and to interest all groups of people in the improvement of the nation's foot health.

I appeal to all of you doctors in the profession seated here tonight and all others, to be "deputy" presidents in your own office and in your own communities to spread this same gospel.

(Sometimes I think that we have permitted the Women's Auxiliary to be our only "deputy" presidents. I cannot stress too emphatically the value we attach to "our ladies" efforts.)

As the presiding officer of the House of Delegates and the Executive Council, it is my duty to see that the stated and formulated policies of our Association are promoted to the greatest extent possible with our economic, physical and human resources.

At the 1956 House of Delegates, we adopted a statement that describes what the profession expects of each practitioner, by reason of his training and experience. Adoption of this statement requires that every member of the Association is ready to accept all the responsibilities that this statement implies. In my visits to the various regional and state meetings, I hope to impress upon any listeners the need for members of our profession to accept this responsibility and embark upon a program that will make each office and each practitioner the mecca for the very finest foot care possible. **Fundamental to the success of all our objectives are highly competent, professionally minded and publicly conscious practitioners.**

The first fundamental for the accomplishment of our objectives is the finest professional schools possible. In the next few years our colleges must prepare themselves for an influx of students. This is a problem faced by all colleges and professional schools. Because our membership is small and because our schools are not publicly supported from tax funds and have only meager endowment resources, the profession at large must organize to assist our dedicated educators. This is a monumental "bootstrap-lifting" operation.

I could enumerate other programs and projects the Association must initiate, promote and continue. Some of these are long range and some are short range. Some are of major importance and some of minor importance. But I have promised not to try your patience and will mention only one more major program.

Although the start was made some years ago, last year saw greatly accelerated activity in our efforts to be participants, in the public interest, in prepaid health

insurance programs. This is of tremendous importance to our members, our patients and the public at large. Our techniques enable us to minimize or eliminate periods of disability. This has very significant economic, psychological and social implications. Our participation in these programs will tend to hold down the mounting costs of health services. This, and the closely related hospital chiropody service is one of our major programs for this year.

Because of our limited resources we are unable to extend ourselves in all directions at once. We must select certain programs for major activity but this does not mean that we can fail to keep track of all other areas of our program.

The temporary nature of the office of President makes possible a continual addition of new ideas, concepts and thoughts to the over-all operation of our Association. Each president has the opportunity during his tenure to make his contribution. By the same token, the continuity of operation depends almost totally upon the effectiveness of our National Office. We expect its executive staffs to be dedicated individuals, completely informed on all subjects, and have the drive to execute all decisions of the House of Delegates and the Executive Council. We have such an office.

As your President, I shall try to fulfill my obligation of making friends for our profession in all places. I shall try to be continually cognizant of the activities of our National office and will make my meager contributions. The future of our profession has never been brighter, the people in it never more dedicated, and the opportunities in it never greater or more challenging.

Twenty-five years ago, when I attended my first annual meeting in Washington, D. C., I did not have the audacity even to dream that I would one day, humbly and proudly, accept the great honor and office of President of our Association. I thank you all for this opportunity to serve you.

JONAS C. MORRIS, D.S.C.

You cannot fathom your mind. The more you draw from it the more clear and fruitful it will be.

G. A. Sala

Congress Considers

For more than three weeks the Senate has been engaged debating the Civil Rights Bill. In the meantime, it will not admit of any interruption, not even to consider appropriation bills. The House has disposed of some highly controversial measures. H.R. 1, School Construction Bill was thoroughly debated and finally defeated by a record vote of 205 to 203. It passed the bill that will increase the payments to postal employees by a record vote of 379 to 38. It also passed H.R. 2460, bill that improves the conditions for military career nursing, dietetics and physical and occupational therapy.

Tom D. Spies

The House also, at the suggestion of the speaker, adopted unanimously the following concurrent resolution commending Dr. Tom D. Spies, a native of Texas. "That the Congress and the American people hereby express their gratitude to Dr. Tom D. Spies for his noteworthy medical achievements toward alleviating the sufferings of his fellow men and for his outstanding contributions to the knowledge of the science of human nutrition, especially in the field of earlier and better methods of diagnosis and treatment of nutritional deficiency diseases."

Small Business

Small business administration reports that it has made 34 loans, totaling $2,976,550, for construction expansion or equipping health facilities. Loans were made to proprietary hospitals, nursing homes and medical and dental laboratories. That money was loaned to corporations but it has decided to extend its services and is making available money for loans directly to professional people to be used in construction, expansion or improvement of offices and for purchase of office equipment. Chiropodists-Podiatrists are included.

The details for eligibility can be secured at the regional offices in Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Denver, Los Angeles, San Francisco and Seattle.

Surplus Property

Surplus property for which the Federal Government paid $62,360,609 was made available to the states for educational, public health and civil defense purposes during April, May and June of 1957 by the Department of Health, Education and Welfare. Property transferred to the states includes such items as school and hospital building sites, buildings suitable for college dormitory or faculty housing, motor vehicles, hospital, school and office furniture, etc.

Research on Aging

The Surgeon General, Leroy E. Burney, announced a $306,922 award for research on aging allotted to Duke University at Durham, N. C. The award is the first grant in the public health service's new program designed to encourage establishment of research centers in which many departments of university and health and related agencies of a community will cooperate in studying various aspects of aging.

The program at Duke University has four main objectives:

1. To develop a center for aging research, based on university-wide effort.
2. To support fundamental research concerned with health problems of aging.
3. To train investigators interested in the problems of aging and
4. To foster a regional resource for the dissemination of scientific knowledge in the field of aging.

Investigating Committee

Congressman Bow, Republican of Ohio, is sponsoring H.Res. 302 to create a select committee to study activities in which Federal aid is extended to state and local governments, independent agencies or to individuals. The committee is to be composed of five members appointed by the speaker and would study to determine justification for initiation or continuation of Federal aid, economic impact on beneficiaries and how Federal grants affect local incentive and independence. Committee would report to Congress.

Congressman Landrum, Democrat of Georgia, sponsors an identical resolution, H.Res. 312, except that a committee of each is authorized.

The following bills in which we have had interest, and some of which have been reported in our column, remain to be acted upon:

S. 2339, H.R. 8299—Federal Workers Health Insurance; H.R. 9 and 10—Jenkins-Keogh Tax Deferment; S. 1922, H.R. 6874—Construction Grants for Medical Schools; S. 1750, H.R. 6506—Health Insurance Pooling; S. 2191—Lobbying Act.

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(Continued from Page 459)

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PHARMACEUTICAL PREPARATIONS FOR THE PROFESSION

HARRY L. HOFFMAN, Ph.G., D.S.C.
Chairman, Council on Chiropodical Therapeutics and Pharmacy

A column devoted to preparations, new and old, with emphasis on their value and uses in everyday chiropody practice. This will be a regular monthly column and we invite questions, which we shall endeavor to answer, or obtain the answer.

Butethamine Hydrochloride, N.F. (Commercial name: Monocaine Hydrochloride)

Action and Uses: Butethamine Hydrochloride is a local anesthetic similar to procaine hydrochloride. It is used for nerve block anesthesia in dentistry and other surgery. Present evidence does not warrant its use for topical or surface anesthesia of mucous or other membranes. Its effects, either with or without epinephrine hydrochloride, are qualitatively identical with those of procaine. Quantitatively, butethamine hydrochloride has about one third (1/3) more anesthetic and toxic potency than procaine (i.e., a butethamine hydrochloride solution of ¾ the concentration of a procaine solution is of equal effectiveness).

Dosage: For dental or other minor surgery, a 1% solution with epinephrine 1:75,000 may be injected to obtain nerve block anesthesia. In major surgery or other procedures requiring nerve block anesthesia equivalent to that produced by 2% procaine, a 1.5 per cent solution of butethamine hydrochloride with epinephrine 1:100,000 may be used.

(Applicable commercial name: Monocaine Hydrochloride.)

All local anesthetic agents are toxic and the tolerance of patients varies. Safe dosage, therefore, is limited for each drug, and administration must be individualized.

Choice of preparation, concentration, rate and location of injection, along with age, emotional and physcial status of the patient, are a few of the factors involved. One should use the smallest amount of the least toxic preparation that will serve the purpose, if reactions are to be avoided. The use of barbiturates as premedication is advisable and helpful to prevent or decrease toxic reactions.

Commercially: Monocaine Hcl. solutions have been offered to members of the healing arts since 1937 by the Novocol Chemical Mfg. Co., 2911-23 Atlantic Ave., Brooklyn 7, N. Y.

The Novocol Company recommends Monocaine Hcl. 1½% with or without epinephrine 1:100,000 for Chiropody.

Supply: These solutions are available in both multiple dose vials (rubber stoppered bottles) and in 5cc size Anestubes (metal capped cartridges).

Hemostatics

The substances having a purely local effect on the vascular system are for the most part directed toward acceleration of coagulation, such as the combatting of hemorrhage, when applied directly to bleeding surfaces. These include thrombin, gelatin foam, fibrin foam, oxidized gauze and thromboplastic brain extracts. They are useful to combat oozing from minute vessels but should not be expected to control bleeding from arteries or veins when there is appreciable pressure at the bleeding point from within the bleeding vessel.

Gelatin Sponge, absorbable, U.S.P. (Gelfoam.) This is a sterile, absorbable, water-insoluble gelatin-base sponge.

Absorbable gelatin sponge is a light, nearly white, nonelastic, tough, porous matrix. It shows no tendency to disintegrate even with rough handling.

Action and Uses: Absorbable gelatin sponge material, although insoluble in

aqueous mediums, is absorbable and therefore may be used as a surgical sponge which may be left in place following closure of an operative wound. This material will be absorbed completely in 4 to 6 weeks without inducing excessive formation of scar tissue or excessive cellular reaction. It is indicated in the control of capillary bleeding, particularly when moistened with thrombin solution. Apply 10 to 15 seconds with gentle pressure.

Dosage: Absorbable gelatin sponge may be applied to the bleeding surfaces in amounts sufficient to cover the area. For such purposes it first should be moistened thoroughly with sterile isotonic sodium chloride solution or thrombin solution.

Applicable commercial name—Gelfoam, The Upjohn Company, 223 East Lovell Street, Kalamazoo 99, Mich.

Supply: Gelfoam size 12, sterile (C.A.) jar or box containing 4 sterile surgical sponges, each approximately 20 x 60 mm (12 cm^2) x 10 mm.

Gelfoam size 100, sterile (C.A.) box of 6 envelopes each containing 1 sterile surgical sponge approximately 80 x 125 mm (100 cm^2) x 10 mm.

Thrombin, U.S.P. A sterile protein substance prepared from prothrombin of bovine origin through interaction with added thromboplastin in the presence of calcium. It is capable of causing the clotting of whole blood, plasma or a solution of fibrinogen without the addition of other substances. It may contain a suitable antibacterial agent.

Description: Thrombin is a white or grayish amorphous substance dried from the frozen state. It complies with the solubility requirements of the National Institutes of Health.

Action and Uses: Thrombin is intended as a hemostatic for topical application to control capillary bleeding in operative procedures. It may be applied as a dry powder or dissolved in sterile isotonic saline solution. It should *never* be injected.

Dosage: Thrombin is applied as a dry powder or in solution containing 1,000 to 5,000 thrombin units.

Applicable commercial name—Thrombin, The Upjohn Company, Kalamazoo 99, Mich., Parke, Davis and Company, Detroit 32, Mich.

Salimeph-C with Colchicine

Analgesic and anti-arthritic. To combat gouty arthritis.

Composition: Each blue scored tablet contains Salicylamide, 250 mg. Mephenesin, 250 mg. Ascorbic Acid, 30 mg. and Colchicine 1/250 gr. (0.25 mg.)

Action and Uses: To combat gouty arthritis and help prevent gouty exacerbations.

Administration: Acute cases—two (2) tablets every hour until pain is relieved. (8 or 10 doses are usually sufficient.) To prevent recurring attacks, 2 to 6 tablets daily. Please note: Dosage should be temporarily stopped or modified if diarrhea, nausea or vomiting appears. These gastrointestinal disturbances are the only side effects to be anticipated in therapeutic doses.

Supply: C. T. Blue tablets scored, in bottles of 100, 500 and 1000 each. By Kremers-Urban Company, Milwaukee 1, Wisc.

Typical Prescription:

Rx Tabs. Salimeph-C with Colchicine
Disp. #C
Sig: 2 tablets every hour for 6 doses
then 1 every 3 hours.

TECHNIQUES IN FOOT SURGERY

L. R. McCAIN, D.S.C., F.A.C.F.S., and N. H. KETAI, D.S.C., F.A.C.F.S.
Editors, Publications Committee, A.C.F.S.

Illustrated case reports and discussions, suggesting approaches to chiropodical surgery, from the files of the American College of Foot Surgeons.

A Surgical Approach for Removal of a Subungual Exostosis of the Distal Phalanx of the Great Toe

A white woman, aged fifty-eight, seen in the hospital, presented an incurvated nail of the great toe of the right foot, together with a subungual exostosis. This was confirmed by X-Ray findings.

Urinalysis indicated no sugar. Serological findings revealed Hemoglobin 71%, W.B.C. 8,300, and R.B.C. 4,400,000.

Procedure: Anesthesia was effected by a toe block using 5 cc. of procaine Hcl. 1%.

A "fish mouth" incision was made extending from the medial side of the toe just proximal to the nail plate, around the end of the toe to the lateral side just proximal to the nail plate. The nail plate and surrounding soft tissues were then carefully dissected from the dorsal aspect of the distal phalanx, exposing the exostosis. The exostosis was then removed with bone rongeurs from the dorsal aspect of the distal end of the terminal phalanx. This was then rasped smooth a little below the normal contour of the bone to allow for any overgrowth in the healing of the bone. Fat tissue was then removed from the edges of the wound to allow for good coaptation of the tissues. Eight 000 dermal sutures of the interrupted type were then used to close the wound. Compression dressing was then applied.

The patient was given 100 mg. of Demerol at four-hour intervals for postoperative pain.

POSTOPERATIVE treatment was as follows: The wound was redressed on the first and third postoperative day, and compression dressing reapplied. On the sixth postoperative day the entire wound was redressed with a sterile bandage. On the tenth day following surgery the sutures were removed and sterile dressing applied. On the fourteenth day the wound was healed and the patient dismissed.

Robert L. Brennan, D.S.C.

Comments: This is the procedure of choice for removal of an exostosis on the dorsal distal aspect of the terminal phalanx of the great toe. This procedure, however, generally has one of the longest healing times of any surgical procedure used in chiropody, because of the tendency to slough. It is believed this is due to the destruction of the blood supply to the tissue. Blood supply to the involved part of the toe is from the plantar arteries. It will be found that if the incision is made more toward the plantar aspect of the toe the blood supply going to this part of the dorsal aspect will not be so involved, and the tendency for a slough will not be so great.

L.R.M. & N.H.K.

A Surgical Approach for Removal of a Subungual Osteoma

A white woman, aged forty-eight, seen in the clinic, presented an enlargement of the distal end of the fifth toe left foot that was very painful when wearing shoes.

X-Ray findings indicated what appeared to be a small osseous tumor of the distal phalanx of the fifth toe.

Examination revealed blood pressure 138/86. A study of her serological findings

indicated hemoglobin 14 gms.; W.B.C. 8,300; R.B.C. 4,450,000; Polys. 68, Lymphs. 28, Monos. 4. Urinalysis was negative for sugar.

Procedure: Anesthesia to the toe was effected by use of a toe block, using 1cc. of Xylocaine ®[1] 2% plain.

A transverse incision was made along the distal phalangeal articulation, approximately one-half way around the toe. A second incision was then made extending from one end of the original incision around the end of the toe inferior to the nail, to the other end of the original incision. The nail and soft tissue were then dissected free from the distal phalanx and removed. The capsule between the head of the middle phalanx, and the base of the distal phalanx, was then severed, and the distal phalanx dissected free from the tissue. The plantar skin flap was then brought back up to cover the middle phalanx, and sutured to the dorsal tissue over the head of the middle phalanx. Three 000 dermal sutures of the interrupted type were used in closing the wound.

Postoperatively the patient was given a prescription for six Demerol®[2] Hcl. Tablets 100 mg. with instructions to take one every four hours for pain if it was necessary.

Postoperative treatment was as follows: A sterile Telfa®[3] strip was placed over the wound and a compression dressing applied. The day following surgery the outer compression dressing was removed, and a new dressing applied. On the seventh postoperative day the sutures were removed and a dry sterile dressing applied. On the thirteenth day following surgery the dressing was removed and postoperative X-Rays taken. On the twentieth day the patient was dismissed.

A Pathology Report indicated a benign osteoma of the distal phalanx of the fifth toe left foot.

James W. Hembree, D.S.C.

Comments: The removal of the entire distal phalanx is ordinarily not done for this particular condition, because of the attachment of the long flexor and extensor tendons. It will usually suffice to remove the head of the distal phalanx, as this is ordinarily the location of a subungual osteoma.

A partial amputation heals more rapidly than where a "fish mouth" incision is used, particularly on the lesser toes. From a cosmetic standpoint, the shortening of the toe, and the renewal of the nail is of no great consequence.

L.R.M. & N.H.K.

®[1] Astra Pharmaceutical Products Inc.
®[2] Winthrop Laboratories
®[3] Bauer & Black

"Our strength is in character and truth and decent living, and it will triumph."
—Herbert Hoover

ABSTRACTS FROM THE CHIROPODY LITERATURE

ROBERT SHOR, D.S.C.
LOS ANGELES, CALIF.
Chairman, Committee on Publications

Editors of Local, State and Regional Publications are requested to provide copies to the Chairman of the N.A.C. Committee on Publications who is preparing this section of the Journal.

HYPERHIDROSIS—BROMIDROSIS

M. A. Rakow, N. Y. J. of Pod., 6:11-13, June 1957.

Sweating of the feet may be associated with heloma molle, verruca, debilitating diseases, glandular imbalance, and fungus infection, or the condition may be purely a local manifestation without complications.

Hyperhidrosis and bromidrosis have been treated with a multitude of methods, both, physical, chemical, mechanical and in combinations of the aforementioned therapies.

Rakow touches upon the physical therapy most often employed and then discusses the utilization of medicaments, both external and internal, for the treatment of hyperhidrosis and/or bromidrosis. He describes prescriptions for powders and liquid preparations which are valuable adjuncts to the treatment of these conditions.

THE DENVER BAR

S. Max, Ind. State Pod. J., 22:1, June-July 1957. (Reprint of N. J. Chir. J.)

A leather built up when properly applied to the sole of the shoe is a great aid in alleviating many painful conditions of the foot, particularly in the metatarsal area.

The Denver Bar is made of three or more pieces of sole leather applied to the sole of the shoe. It starts as a feather edge directly behind the metatarsal heads and extends posteriorly (1½-2", depending on the shoe size) gradually becoming thicker until the posterior of the bar is equal in height to the anterior raise of the heel of the shoe.

The Denver Bar should be used: To eliminate pressure from the metatarsal heads; to realign shoe and alter function in walking so that patient will be better balanced; to aid in eliminating callouses from the area anterior to the metatarsal heads; to act as an adjunct in helping the arches do a better job; to remove pressure as in Morton's Neuralgia or March Fracture, etc.

Max elaborates on the above as well as many other uses for the bar.

NEW EARLY DIAGNOSTIC SIGN OF PHLEBITIS OF THE LOWER EXTREMITIES

Ortiz Ramirez, T. & Serina Ramirez, R., Am. Heart J. 50:366, 1955.

(Reprint Mass. Footnotes, March 1956.)

Various clinical tests have been proposed and employed in the early diagnosis of phlebitis. The authors describe a "sign" which was positive in 100 percent of patients with presumptive phlebitis. With patient in a recumbent position and the extremity slightly flexed, a blood pressure cuff is applied above the knee and inflated to about 40 mm. Hg. In the presence of deep phlebitis, pain develops in the affected leg, usually in the popliteal area or calf, increases in intensity during the following five minutes, and subsides instantaneously after release of the pressure. The test is considered negative if pain does not appear, does not increase with pressure, or does not disappear after release of pressure.

HYPNOTISM

W. J. Bell, Chiropody Review, Eng., Jan. 1957.

Hypnotism was raised to the level of a science by American researchers who convinced the world that the mind can be divided into two levels, the conscious and the unconscious.

The unconscious mind, so-called because we are unaware of what is transpiring, is divided, by some authorities, into the unconscious and the subconscious. The subconscious level is one from which memories of the past can be visualized.

The word "Hypnotism" comes from the Greek "Hypnos" meaning sleep. However it differs in important respects from sleep. It is really a state of hyperconcentration. Under hypnosis one is only conscious of the hypnotist's voice. Nothing else can be seen, heard or felt.

Bell discusses the department of the mind which Freud called the "Endopsychic Censor." The exception stated is the making of a very improper suggestion; one which violates the subject's moral susceptibilities.

It is a fact that if you can lull three senses a person will go to sleep. It is a kind of reflex action. Touch, sight and hearing are easy to lull and the patient will fall asleep listening to the hypnotist. This is being in "rapport" with the subject.

The best occasion for the use of hypnosis is in the production of local anesthesia.

BOOK REVIEW

DIAGNOSIS AND TREATMENT OF PERIPHERAL VASCULAR DISORDERS

David I. Abramson, M.D., F.A.C.P., Cloth. $13.50. Pp. 537, with 135 illustrations. Hoeber-Harper. 1956.

This is an excellent book focused entirely on the everyday problems of office practice. It is a practical guide to the management and effective treatment of a troublesome group of disorders and the reader will find therein specific help in the treatment of at least 90% of the vascular disorders seen in practice. Emphasis is placed on successful methods for local care of the feet.

The book is divided into three basic sections: Part I consists of seven detailed chapters containing a clear and concise guide to the differential diagnosis of signs and symptoms. Here one will find in detail the practical tests which can be carried through without the use of elaborate equipment.

Part II describes the clinical disorders and is the largest section of the book. It contains 18 chapters according to clinical classification and the treatments are presented in detail. Dr. Abramson gives the methods for local care of the feet; venous stasis ulcers; occlusive arterial vascular disorders; and many others. The use of drugs and diet has been evaluated from personal experience.

The final section of the book summarizes the clinical anatomy and physiology of the peripheral circulation, intravascular blood clotting and its prevention and the pharmacologic action of drugs used in this field.

Dr. Abramson answers such problems as how to determine the etiology of swelling of a lower extremity; the differences of deep thrombophlebitis and phlebothrombosis; the differentiation of vasospastic from organic arterial disorders, and many others.

The style is most acceptable and the publisher is to be congratulated on the format of the volume. The print can be easily read, and the paper is very satisfactory for reproduction of the illustrations. This book is highly recommended and should find wide use among chiropodists and physicians.

Robert Shor, D.S.C.

DIGESTS FROM THE LITERATURE

Anyone wishing to read the complete article, if not available in your local library, may borrow it through interlibrary loan. A microfilm may be borrowed from the National Medical Library, Washington 25, D. C., or a photo-duplication may be obtained from that library at a cost of fifty cents for five consecutive pages.

CIRCULATORY SYSTEM

Intramuscular Trypsin in the Treatment of Acute Thrombophlebitis, W. A. Reid and A. H. Wilkinson, Jr. J. M. A. Georgia 45: 351-53, 1956.

Thirty patients with thrombophlebitis were treated by a combination of bed rest, elevation of limbs, and administration of anticoagulants and antibiotics. Thirty others (aged 3 months to 85 years) received the same therapy except that intramuscular trypsin was substituted for anticoagulants. Patients having an accompanying cellulitis, infected leg ulcers, or acute arthritis had been excluded from the groups. Penicillin and streptomycin were administered during febrile periods of both groups. Trypsin 2.5 mg. was given intramuscularly in alternate gluteal regions every 8 hours. Those receiving trypsin responded as well as or better than those receiving anticoagulants. Local pain and swelling with induration did not occur significantly following the 867 injections of trypsin, but two patients suffered non-fatal pulmonary infarction. One of these two patients with a long history of the disease was discharged with evidence of post-thrombophlebitis syndrome, and 30 were readmitted because of recurrent thrombophlebitis, which, however, responded to anticoagulant therapy.

Gangrene of Venous Origin, R. F. Moore and G. B. D. Scott. Brit. J. Surg. 43: 591-94, 1956.

A case is presented of gangrene of the right foot and lower leg of venous origin, a rare condition. It seldom affects individuals who are otherwise healthy. The patient, a woman aged 47, had a pancreatic cyst drained and was well for 1½ years when she had pain in the left side of the chest, dyspnea, productive cough and malaise. About 6 weeks later she had sudden onset of pins-and-needle sensation in her right foot; edema developed in the thigh the next day and severe pain in Scarpa's triangle and in the thigh and calf muscles. The following day edema of the lower leg and foot occurred with induration of the calf muscles. Treatment with bed rest, elevation of the leg and use of anticoagulants brought no relief and four days later with increase of edema, pain and tenderness, the tips of the second and fourth toe became cyanosed. The diagnosis was "blue phlebitis" with incipient gangrene. Gangrene developed rapidly and two weeks after onset, a right mid-thigh amputation was performed. Biopsy of a liver nodule showed metastatic non-mucus secreting columnar-celled adenocarcinoma. Death occurred one month later. This disease usually occurs between the second and fifth decade and in 80 per cent of cases involves a lower extremity. Persistence of discoloration on elevation is a useful sign in differentiating between venous and arterial occlusion. Lumbar aortogram is helpful in diagnosis and better than peripheral arteriography which does not reveal an iliac artery occlusion. Death occurs in about 40 per cent of cases and is oftener due to circulatory collapse and chronic debility than to pulmonary embolism.

Hypotensive Drugs and the Control of Vascular Tone in Hypertension, (Editorial). Nature 178: 131-34, 1956.

A brief resumé of papers included in a symposium on hypotensive drugs and control of vascular tone in hypertension is presented. Of the veratum alkaloids, the most potent are the ester-alkaloids which retard heart-rate and respiration by interfering with afferent nerve endings in the lungs. The vasodilator amidines have similar reactions. The central effects of reserpine are through the hypothalamus; the effects differ from those of the barbituates, for animals given reserpine can be roused. Its chief effect, dilatation of the capillaries, is independent of the central nervous system. Tolerance to the methonium drugs develops at different rates in patients and is unrelated to severity of the disease or to its duration. Since hexamethonium potentiates the action of adrenaline, tolerance may be due to increasing sensitivity of the end-organ to adrenaline, not to lack of effect of the methonium compound on the block. The new compounds, 139*C*55 and 356*C*54, seem more effective than the -nium compounds in increasing diameter of the pupil, and have a longer period of action. It is suggested that hexamethonium may be potentiated after reserpine. In one paper describing a 5-year follow-up of the results of methonium treatment in malignant hypertension, it is stated that in assessing the value of these drugs, it was planned to use half of the patients as controls, but improvement in the patients treated was so successful, the treatment could not be withheld from the others. Hexamethonium is now being replaced by pentolinium. If 0.1 mgm. reserpine is given three times daily, smaller doses of methonium drugs can be used, thereby reducing side effects. Survival is dependent upon renal damage; if blood urea is not greater than 60 mgm. per 100 ml., the patient has an even chance of being alive after 5 years. Methonium therapy clears retinitis, headache disappears, heart size diminishes, signs of heart failure decrease and attacks of encephalopathy are usually decreased; the drugs do not influence hemiplegia or arteriosclerosis. In initiating hypotensive therapy the following must be considered: (1) the drugs should be administered with the patient standing; (2) the dose must be meticulously adjusted to bring down the blood pressure to 120/80 mm. when maximum effect is exerted; (3) the combination of drugs, such as reserpine (0.5 mgm.) and the ganglionic blocking agent; (4) frequent checking of the response of blood pressure to doses administered throughout the treatment period by use of all-day tests. One speaker disapproved of use of veratrum alkaloid because the high dose necessary produces side effects. Pentolinium and hexamethonium have little value in treatment of benign hypertension, but the Rauwolfia alkaloids benefit because of their sedative effect; in the accelerated phase, Rauwolfia alkaloids are of little value, and pentolinum, although lowering blood pressure, has no effect on renal failure. Of 3,000 patients treated with sympathectomy, 40 per cent survived 5 years. This speaker remarked that drugs would probably not improve this figure; another disagreed with this evaluation of sympathectomy. One speaker reported that 90 per cent of his hypertensive patients were able to resume work after treatment with a combination of reserpine, pentolinium and hydralazine.

The Effect on the Blood Flow Through the Muscle and the Skin of the Forearm of Infiltration of the Motor Nerves with Local Anesthetic Solution, I. C. Roddie, J. T. Sheperd and R. F. Whelen. J. Physiol. 132: 65-6P, 1956.

The oxygen saturation of blood samples taken from a superficial vein draining the skin and a deep vein draining the muscle of a forearm was determined spectrophotometrically. The ulnar and median nerves

at the elbow and the radial nerve in the musculospiral groove were infiltrated with 2% lignocaine, thereby producing complete paralysis of the forearm and hand muscles, but not affecting the skin of the forearm. Exercise of the forearm muscle demonstrated there was no mixing of the blood between the tissues drained by these two veins. Dilation of the muscle and skin vessels following nerve block demonstrated that both the muscle and skin of the forearm are supplied with vasoconstrictor nerve fibers, as shown by various experimenters earlier. Blocking of the nerves to the forearm by indirect heat causes an increase of forearm flow; oxygen saturation of the blood of the skin fell whereas that of the blood from the muscle rose. The conclusion was that a local anesthetic solution infiltrating the motor nerves to the forearm releases constrictor tone to both skin and muscle vessels and blocks the vasodilator fibers leading to the skin vessels activated by indirect heating.

Observations on the Capillary Blood Vessels of the Human Nail Fold, E. W. Wells and T. J. Buchanan. J. Anat. 90: 329-36, 1956.

Observations were made on 69 apparently healthy persons; 63 were aged 18 to 30 and 5 were 40 to 50. Fingernails were microscopically studied and photographed. A considerable range of capillary pattern was noted in different subjects, but the pattern in any one given finger is quite constant over periods of up to one year. Varying degrees of tortuosity or figure-of-eight formation in the terminal loop of some capillaries were common, but degrees of tortuosity or other forms of deformation vary from time to time; it is not always clear whether a particular vessel should be called tortuous or slightly twisted. The idea that different fingers of a healthy individual show comparable patterns whereby general systemic effects on these small vessels can be assessed was not always found to be the case. Differences were seen in different fingers on one hand and differences in the same finger of each hand. Experimental studies, such as blistering the terminal cap by freezing and cutting through the base of the nail fold showed the final pattern to be of much the same general form as the original. These observations did not support the idea that the capillary pattern is plastic and capable of alteration in harmony with local conditions.

Prognosis of Patients with Intermittent Claudication, W. B. Spaulding. Canad. M. A. J. 75: 105-11, 1956.

The principal findings in a study of 108 patients with intermittent claudication were: 13 per cent died within 3 years of onset, and 25 per cent within 5 years; death apparently resulted from coronary thrombosis. On the average, patients in whom the disease began early in life, lived longer than those with the disease beginning late. Of 23 patients with intermittent claudication beginning at 55 to 60, only 16 lived for 5 years; 22 patients (20 per cent) had a history of angina. Blood pressure readings averaged above 150/100 mm. Hg.; 40 patients had hypertension. Death of 17 of the 25 who died was attributed to cardiovascular disease; probably coronary artery disease in 4 others; arteriosclerotic heart disease in 12; cerebral infarction or hemorrhage in 7; hypertensive heart disease in 1, and aortic thrombosis in one. Twenty-seven patients had amputations, in most instances due to gangrene, to infection in a few, and to intractable pain in one. The amputation rates constantly increased from the third to the eighth year. The mortality rate was higher in hypertensives than in non-hypertensives. Claudication usually occurs in only one leg, but in time extends to the other limb. Patients with unilateral claudication have a higher mortality rate than those with bilateral pain. Death is rarely related to the causes of the intermittent claudication.

DERMATOLOGY, ALLERGY AND FUNGUS DISEASES

Dyclonine Hydrochlorides: A New Topical Antipruritic Agent, W. J. Morginson, C. O. Rich, et al. Postgrad. Med. 19: 605-17, 1956.

A new antipruritic agent, Creme Dyclone used in treatment of 222 patients, with areas of dermatitis and dermatoses, proved effective in controlling pruritis in 57 per cent of cases, and ineffective in 43 per cent. Its effect was rapid and endured for several hours. Paired studies were made using Creme Dyclone and the same vehicle but without dyclonine hydrochloride. Whereas the former always relieved itching, the latter brought no relief. The Creme Dyclone proved a satisfactory dressing after cauterization and curettement of plantar warts in four patients. It had no effect on dermatoses except for relief from pruritis: provided no subsidence of inflammation; no regression of vesiculation or stimulation of epithelization; no reduction in bacterial or fungous flora. No toxic reactions nor allergic sensitization were noted. Another writer reported use of dyclonine on 200 patients, with excellent results in 56.5 per cent, good in 28 per cent, and failure in 15.5 per cent.

Skin Planing of Cosmetic Defects, E. R. Gross. Delaware M. J. 28: 158-60, 1956.

Skin planing is a safe and effective method of treating pitted scars caused by acne. It is superior to the older methods — sandpapering abrasive technique, cryotherapy, local chemotherapy using phenol and trichloacetic acid, abrasion with pumice, and scarification. The patient is given 25 to 50 mg. of Demerol one-half hour before operation, and the area thoroughly cleansed; then a refrigerant, 75% dichlorotetrafluoroethane (freon) and 25% ethyl chloride is sprayed on the operative site. The area is then abraded with a fast cutting stainless steel brush until the area is completely planed. Preferably the whole face is done to give a smooth even surface, and to minimize demarcation lines. Telfa dressings are applied and left in place for 48 hours; crusts will form and usually exfoliate in 5 to 7 days. Up to four planings may be required for maximum improvement. A mid erythema develops which lasts for 6 to 8 weeks. Nevi should be avoided in planing. Keloidal lesions are rarely benefited. The psychologic effect outweighs the physiologic improvement.

Practical Patch Testing, H. G. Goldberg. J. Med. Soc. New Jersey 53: 166-69, 1956.

The patch test is simple to perform and interpret by anyone experienced in its use. It is valuable in determining the cause of dermatitis venenata, allergic eczematous contact-type dermatitis, and sensitization dermatoses. The technique is described and a list of questions provided to be asked the patient to aid in determining the contact agent.

The Present Status of Differentiation of Allergic and Nonallergic Hypersensitivity to Physical Agents, R. L. Baer. Amer. Pract. 7: 1311-13, 1956.

Although some dermatoses arise from a peculiar hypersensitivity of the skin of certain individuals to particular physical agents which do not affect others living under the same conditions, other dermatoses are produced by an allergic sensitivity based on a *specifically acquired* alteration in the capacity to react, and such irritant reactions occur in *all* individuals. It is assumed that some intermediary substances are involved in the reactions. It is suggested that the actual allergen is a metabolite in the skin, a "secondary allergen," a substance occurring normally in human skin whenever exposed to the particular physical stimulus, but only in susceptible individuals does this metabolite act as an allergen, when exposed. Or it may be newly formed after such exposure from a pre-existing substance (conversion of a proantigen into the an-

tigen). If the former is true, the subject has the capacity to become allergic to a metabolite occurring in normal skin to which most other individuals fail to develop an allergic response, although they elaborate the same metabolite on exposure to that physical agent. This seems the most reasonable explanation of the majority of cases.

Contributing Allergic Factors in a Case of Blistering Disease Resembling Pemphigus; Treatment by Means of Cortisone and Allergic Management, B. M. Zussman. Amer. Pract. 7: 1256-58, 1956.

A case of blistering disease resembling pemphigus is reported in a woman aged 59, who had hay fever and wheezing every fall until 1948 when the symptoms disappeared except for itching of throat and ears every fall. The eruption appeared in 1952 on wrists and forearms and blisters in the mouth. When seen in 1954 she had bulbous and vesicular lesions all over her body, many of them crusted and oozing. With use of allergic therapy and cortisone, the disease was controlled, over a period of two years. The cortisone treatments were gradually stopped and for four months episodes of itching have been controlled by small doses of cortisone and allergic therapy; the blisters and bullae have not recurred. Since neither cortisone alone nor allergic therapy alone was curative, it is suggested that in cases of erythema multiforme and related diseases, allergic factors should be considered.

Antifungal Properties of 1.2. 3.4-Tetrahydro-9-Fluorenone, F. Quak and A. S. R. Pereira. Antonie van Leewenhoek, Amst. 22: 177-89, 1956.

The investigations regarding the fungistatic and fungicidal activities of this new antifungal compound (THF) are reported. The spore germination inhibiting activity of THF on plant pathogens is about equal to that of CuSO4 and much lower than that of tetramethyl-thiuram disulfide (TMTD). FHF proved very potent in inhibiting fungicidal activity against dermatopnytes and Candida albicans. It appears to have more of a fungicidal than a fungistatic nature. The activity of THF on dermatophytes is reduced to about one-fourth in the presence of serum. A description is given of a modification of the agar plate fungistatic test method used for fungicidal testing.

DRUG THERAPY

Absorption of Topically Applied Vitamins, A. E. Schaefer, H. L. Sassaman, et al. J. Nutrition 59: 171-79, 1956.

Absorption was determined of vitamins applied topically to rats; included were thiamine, riboflavin, pantothenic acid, pyridoxine, and vitamin D. Use of vitamins proved highly effective, with increase of body weight, and prevention or cure of deficiency symptoms. As a vehicle for skin transfer, a plasticized hydrocarbon water-absorbing-gel ointment base proved superior to carbowax preparations. An alcoholic vanillin solution was found an effective vehicle for the skin absorption of these vitamins.

Topical Use of Amphomycin and Amphomycin-Neomycin Ointments, G. A. Cronk and D. E. Naumann. Antibiotic Med. 3: 142-45, 1956.

Twenty-eight patients with skin disease (aged 18 to 25 years) were treated with these ointments: 15 with calcium amphomycin 5.0 mg. / Gm. for 7 to 60 days; 13 others with the same drug in the same amount, but with neomycin 5.0 mg. / Gm. added, for 7 to 37 days. The ointments were applied twice daily with slight rubbing. Six of 8 patients with impetigo improved promptly; 17 with acne vulgaris failed to improve; 1 patient with an infected cyst showed no benefit; 2 with contact dermatitis improved. There was no evidence of skin sensitization or irritation. Amphomycin alone and in combination with neomycin therefore proved to be antibacterial agents in certain skin conditions seen in outpatients' clinics, for example, impetigo.

Use and Abuse of Sedatives and Hypnotic Drugs, F. G. Ebaugh. Postgrad. Med. 19: 513-25, 1956.

Sedatives and hypnotic drugs are important in preservation of life and relief of discomfort and anxiety, but too long use as a crutch and an escape may produce severe physical and psychic dependency. Greater care should be used in prescribing them, and better enforcement of existing regulations is needed. Prolonged use is approved in symptomatic treatment of epilepsy, often in combination with other types of drugs. Indications for short-term usage are listed; their use should not exceed a period of a few days to a few weeks. A table is presented listing their uses, advantages and disadvantages: the chloral group (chloral hydrate in solution or in enteric-coated capsules); paraldehyde; monoureides (carbamides); diuretics; bromides; carbamates; methylparafynol, and *a*-ethyl-*a*-phenyl-glutarimide. Another table lists the dosages, their detoxication and elimination. Contraindications to the use of these drugs include liability to addiction or habituation; prevention of such results is discussed.

MUSCULOSKELETAL SYSTEM

Clubfoot Treatment: Results of Continuative Management, C. J. Roncaglione and W. M. Deyerle. Virginia Med. Mo. 83: 285-94, 1956.

Experiences in managemnet of 77 clubfeet in 48 children are reported as observed in a Clubfoot Clinic; 18 patients with 29 clubfeet already under treatment served as controls. The factors contributing to this disorder and the basic deformities noted are discussed. When the deformity is severe, corrective plaster casts must be worn at one- to two-week intervals over a period of many months to a year or more. Since inflammatory edema and stoppage of the venous and lymphatic return may cause fibrosis, such reaction must subside before further correction of the foot is attempted. Correction should begin soon after birth and proceed to completion as rapidly as the dermato-musculotendinous and neurovascular components of the foot allow. Palpation immediately after birth will reveal whether the deformity is primary or secondary; the former has a good prognosis, the latter a poor one. Primary clubfoot is often associated with a history of familial occurrence and the presence of other anomalies. A mild case of clubfoot unless treated in three or four weeks after birth may become severe even though the contour of the deformity shows no increase. Usually correction of the forefoot does not require surgery; in some cases inversion and equinus of the heel require operative treatment. Treatment in this clinic is begun if the condition of the infant permits on the second or third postnatal day. Occasionally the deformity is not noted until the baby is brought in at six weeks for a check-up; by this time a very pliable deformity can become resistant.

The procedure used is described: A 2-inch plaster bandage is applied while manually unwinding the curled-up foot; this treatment is repeated two or three times at one-week intervals, depending upon the severity of the deformity and the progress of treatment. The plaster is changed at 7- to 10-day intervals during the first three months; less frequent changing of plaster is required as correction slows up and nears completion. However, too frequent changes of the cast can aggravate the traumatic reaction to the soft tissues. As the plaster shoes are being applied the assistant holds the foot against a flat surface beneath the sole and presses downward on the flexed knee. Corrective forces are exerted laterally over the head of the talus and tubercle of the navicular, and medially over the shaft of the first metatarsal and inner tubercle of the os calcis, and the alignment of the head of the talus is corrected by the thumb of the opposite hand. In the

early stages the plaster is cut away beneath the lateral malleolus; in later stages the plaster shoe is molded tightly behind the heel, while the foot is dorsiflexed, in order to hold the os calcis on the flat surface and in dorsiflexion. Pressure damage to the skin is prevented by cutting away the plaster from around the dorsum of the foot and lateral inframaleolar area. The plaster foot is then built into a plaster cast extending up the limb to the groin, with the heel flexed 90°, according to the Kite method. Unless correction of the forefoot is obtained, as demonstrated by the dimple over the sinus tarsi, and the head of the astragalus aligned with the medial metatarsals, eversion of the os calcis and dorsiflexion of the foot is not accomplished, and a rocker foot may result, and be even more difficult to correct. This procedure may extend over a period of 1 to 18 months, depending upon the severity of the deformity. Meanwhile pre-walker (Denis Browne) clubfoot shoes are worn, and manual stretching exercises are administered by the parent. The child is checked every 2 to 4 weeks until he walks with no sign of recurrence. Regular shoes can be worn when a permanent, pliable, corrected foot is obtained; in some cases elevation of the outer borders of sole and heel is advisable.

The Fred Thompson operation has been done successfully in cases of uncontrollable resistance of the entire foot. The medial side of the foot is explored and all obstructing structures removed. Usually the posterior tibial tendon is divided at its insertion and freed from its retinaculum, the medial astragalonavicular, substragalae and posterior crural capsules excised, the Achilles tendon lengthened, and the middle component or all of the deltoid ligament lengthened if indicated. The foot is held in the corrected position for 4 to 8 weeks, or until pliable. Ambulation begins when the plaster is removed. Complications which can occur during clubfoot treatment include pressure sores, inadequate circulation, dermatitis, inadequate correction due to failure to resume casting at signs of recurrence, or to maintain correction until the patient is walking. Correction of rocker bottom foot is described.

Spastic Pes Varus, R. H. Maudsley, Proc. Roy. Soc. Med. 49: 181, 1956.

A girl aged 10 had suffered pain in the foot for 8 months which was worse on walking and relieved by rest. Radiographs showed well-marked bilateral calcaneonavicular articulations. Radiographs of two years before revealed no abnormality. Under general anesthesia the foot was brought to neutral position and a walking plaster cast applied and maintained for 3 months. Pain recurred after removal of the plaster. It was agreed that no active treatment should be undertaken until the age of 12, when a triple arthrodesis should be considered.

Common Injuries to the Knee, C. Keck, Jr. and J. P. Adams. Postgrad. Med. 19: 369-80, 1956.

For diagnosis of knee lesions, an accurate knowledge of anatomy and biomechanics is required, together with proficiency in interpreting routine and special x-ray projections. The anatomic and physiologic considerations are stressed: particularly of the quadriceps which stabilizes the knee in varying positions of flexion and produces powerful extension and helps to maintain equilibrium. Acute traumatic synovitis, which usually follows knee injuries, and its clinical features and treatment are described; also prepatellar bursitis and injuries of the semilunar cartilages, injuries to ligaments, cruciate and collateral; disruptions of the extensor apparatus and patellar fractures. The specific diagnosis and appropriate immediate treatment are described. Treatment is improved by enforcing quadriceps exercises. The illustrations are excellent, some in color.

Studies in the Mechanics of Synovial Joints. IV. The Transarticular Force, Its Magnitude and Consequences, M. A. Mac Conaill. Irish J. M. Sc. No. 365: 193-203, 1956.

The transarticular force which acts along the mechanical exis of a bone and presses articulating parts together, is generated by the simultaneous action of gravity and the muscular force acting at the particular joint. It is shown by use of mathematical formulae that the transarticular force along a given element of the skeleton is equal in magnitude to the weight of that part, including the load it carries, when the joint is at rest. When in motion, however, the transarticular force is increased by an amount proportionate to the kinetic energy required to maintain the motion. A summation of transarticular forces along an articular chain occurs, so that this force in any succeeding element of the chain is equal to the amount proper to that element, together with the sum of the transarticular forces operative along all preceding elements of the chain.

Unusual Osteodystrophy Associated with Renal Disease, B. Posterman. J. Mount Sinai Hospital 23: 187-92, 1956.

The importance of renal functions studies is stressed in cases of nonspecific osteoporosis or atypical Paget's disease involving the long bones, as revealed by X-ray studies. A varying effect upon the skeleton produced by kidney damage, depending upon the effects of acidosis and secondary hyperparathyroidism. No single clear-cut microscopic picture of renal osteodystrophy can be obtained. Renal function damage may result in a skeletal picture of matrix inadequacy (as in osteoporosis) ; of osteitis fibrosa (as in basic parathyroid disturbance) ; or of a combination of these two. A case is described in a 55-year old man with a fracture of the right femoral neck. Laboratory examination revealed a mild uremia, severe anemia, and reversal of the albumin-globulin ratio. Although responding well to the operation, his course was progressively downhill, with onset of uremic manifestations. He died on the 74th hospital day. Autopsy showed all four parathyroids enlarged and slight hyperplasis between the chief cells. These observations suggested that the femoral lesion represented an independent early Paget's disease.

Surgical Applications of Muscle Physiology, C. O. Bechtol. Amer. Acad. Orthoped. Surg., Instruct. Course Lect. 12: 161-64, 1955.

The definite physiological limits of muscle as a motor, for example, tendon lengthening or shortening, tendon transplantation, and cineplasty muscle-motor operations used in amputees. Descriptions are given of the force of muscle and its excursion; interaction of two-joint muscles; additional muscle acting as a force couple; and the correct mechanical relationships of the tendon to the joint. Unless the transplanted tendon is secured by adhesions where gliding through subcutaneous tissue or through a tendon sheath, the transplant will not be successful. Gliding tissue therefore is transplanted with the tendon. If the tendon transplant cannot be carried out and solid healing obtained without formation of adhesions, a two-stage operation is wise, the first stage to establish continuity of the tendon transplant in proper relationship, and the second to free the adhesions.

Experimental Studies and Clinical Evaluation of Linear Growth Stimulation, W. S. Montgomery and A. J. Ingram. South. M. J. 49: 793-97, 1956.

An attempt to stimulate longitudinal growth of the femur and tibia in 47 rabbits by ivory implantation and periosteal stripping, with and without postoperative immobilization, showed some growth stimulation, but not of sufficient magnitude to be significant. Early weight bearing seems essential to convert a passive hyperemia into an active hyperemia of bone production. A preliminary study of 32 children (15 of

whom had a dysplasia or aplasia with normal motor power of the extremities, and 17 had residual poliomyelitis effects with one or both extremities having motor weakness), revealed no justification for brass or ivory implants to promote stimulation of growth. The small gain attained can be obtained by use of a shoe lift.

Rupture of the Lateral Ligament of the Ankle with Interposition in the Subtaloid Joint, M. J. Cox. Proc. Roy. Soc. Med. 49: 395, 1956.

A woman aged 24, thrown over by stepping on a bottle-top, had a severe inversion injury of the right ankle. Under anesthesia the foot was brought to neutral position, but could not be maintained there. X-ray study in forced inversion revealed considerable tilting of the talus. Operation showed complete rupture of the lateral ligament; the anterior fasciculus was torn from the lateral malleolus, the middle fasciculus from the calcaneus, and the posterior fasciculus from the lateral malleolus. Eversion was obtained when the middle fasciculus was rolled into the subtaloid joint; the ligaments were reconstructed, a pressure dressing and backslab applied, and maintained for two weeks, and a below the knee plaster for two months. No similar case was found in the literature.

Fracture-Dislocation of the Talus in Childhood: A Report of Two Cases, N. A. Stephens. Brit. J. Surg. 43: 600-604, 1956.

Fracture-dislocation of the talus, an unusual condition in adults, is very rare in children. Two cases are reported; a boy aged 7 and a girl aged 9 both were hurt on playground apparatuses. X-ray of the boy's ankle showed fracture-dislocation of the talus; at operation the ankle and subtaloid joints were exposed; the body was found lying on the inner side of the space, below and behind the medial malleolus. Following reduction, the limb was enclosed in a below-knee plaster. Changes of evascular necrosis were evident in 5 weeks, progressing at 3 months and complete at 20 months. Eleven years later (when the second case occurred) he was re-examined and found to have a completely normal ankle and subtaloid joints; he had played football without difficulty. Radiographs showed the late stage of avascular necrosis, with vertical compression of the body of the talus. Changes of osteoarthritis are expected to occur sometime later. In the girl's case the radiograph showed a similar injury. At operation the talus was explored and found irremovably fixed in its resting place until the calcaneofibular ligament was divided. The Naunton Dunn maneuver in triple arthrodesis was used, which allowed the talus to slip back into place. The operation was successful but changes of avascular necrosis occurred early. Analysis of the mechanism of such injuries is attempted. The necrosis of the body of the talus proved less crippling in the first case than was expected, though there may be trouble later. It was suggested that subtaloid arthrodesis in the first case might have saved the ankle-joint by providing a new blood supply and would not be apt to limit movement if performed in childhood. Calcaneotibial fusion would not have been justified because of causing a fixed foot; it can still be done at a later date if necessary.

NERVOUS SYSTEM

Neuropathies Due to Vitamin Deficiency, H. M. Zimmerman. J. Neuropath. 15: 335-38, 1956.

Since the natural foods constituting human dietary materials contain a combination of members of the vitamin group, a deficiency of any one factor is almost always associated with a deficiency of one or more other factors, making it impossible to determine which of several dietary essentials are responsible for peripheral nerve and spinal cord changes. Animal experimentation has allowed use of dietary ingredients which can be controlled in respect to any

vitamin constituent; thus it has been possible to attribute manifestations of disease and underlying pathology to a particular vitamin. Thiamine deficient animals show microscopically extensive myeline degeneration. Following the beginning of demyelinating processes, axis destruction appears; completely destroyed nerves show neither myelin or axones present. No inflammatory cellular reaction occurs, only degenerative changes. The peripheral nerves oftenest involved are the sciatics, femoral, tibials, peroneals, medians, ulnars, vagi and phrenics; most frequent are the sciatic and brachial plexuses; involvement is greater in sensory than motor nerves. Chronically deficient animals with peripheral neuropathy develop demyelinating lesions in the spinal cord, and destruction follows the same morphologic pattern as in peripheral nerves. Neuropathy develops also in animals on prolonged riboflavin deficient diets. Diets deficient in nicotinic acids and pyridoxine also cause mild nerve and dorsal column demyelination. However, isocaloric animals receiving adequate amounts of all known vitamin constituents also can show minimal changes of peripheral neuropathy.

Prevention of Falls in the Hemiplegic Patient, M. Peszczynski. Geriatrics 11: 306-11, 1956.

Gait training of the hemiplegic patient should include preventive measures and protective habits; a very long training period may be required to learn these patterns. Hemiplegic patients tend to fall because of disturbances of cerebral circulation; impairment in righting reflexes; changes in motor functions, and sensory involvement. These patients should not try to reach for things on a high shelf, or while turning the head sharply to the right or left. When standing they should turn the whole body, not the head alone; if head-turning is necessary, it should be done slowly, and before turning the patients should look for objects to grasp if they should lose their balance. Patients should be warned of the tendency to fall backwards, especially those with a brain injury; this can be overcome by walking frequently. Hemiplegic patients tend to lean toward the affected side and therefore should be trained to over-compensate by leaning toward the good side. Changes in the locomotor function of the involved lower extremities are the reason for most falls. Some patients compensate automatically, others must be trained to overcome the disability. A large number of severely involved hemiplegics while they do not have to overcome the spastic plantar flexion of the foot, they have an unstable knee and in some cases an unstable hip. If a brace is needed it should be a short one and the patient taught how to walk with the unstable knee; stabilization is improved by constant gait training. Many patients acquire the intermittent double step gait — one step with the involved leg, one with the good leg, then stopping. This allows them to regain their balance regularly. When they disregard recovery of balance every two steps they fall.

Transitory flexion spasm in the involved leg may occur after long sitting. These patients should wait one-half minute or more after standing up before trying to walk. In cases of major contraction of the knees, stabilization by a long leg brace may be helpful. The hemiplegic patient with an impaired foot-placing reaction needs a short leg brace to stabilize the ankle joint. A patient with hemiparesis following a cardiovascular accident may lose control of his balance while walking if bracing is inadequate, because (1) an inadequate angle of the involved foot at the shin may allow the toe of the shoe to catch the floor, causing the patient to lose balance; (2) a 90 degree stop in a shoe-leg brace placed in the shoe, if the sole is inadequately reinforced, may not be maintained throughout the length and the front part of the foot gives way

and goes into plantar flexion; (3) spring arrangement used to maintain a spastic foot at a right angle to the shin increases the tendency toward ankle clonus and production of poor balance.

The influence of sensory deficits of ambulation of the hemiplegic patient has not been given sufficient attention. Since falling may be related to the patient's faulty subjective perception, a study was made of space perception in these patients. Hemiplegic patients may lean heavily toward the involved side, thinking they are standing upright, sometimes deviating 20 degrees or more. Those with injury of the spinal cord and severe involvement of position sense, do not have disturbance of visual perception. The hemiplegic should not get up and walk in a darkened room, unless he grasps furniture when walking. This is unrelated to night blindness, for the patient may see quite well. He should not turn his head strongly when standing without supports, or when walking, or he may fall. He should stop when someone is passing him and lean toward the good side, and try to maintain a steady balance or he will shift his center of gravity too far toward the involved side and fall. He also tends when walking to bring his good side too close to objects (when turning a corner or entering a room); if he enters a room with the involved side close to the door-frame, he does not fall. It is best to try to walk through the middle of the doorway.

NEW GROWTHS

Desmoid Tumors, J. W. Fielding. New York St. J. M. 56: 1487-90, 1956.

These invasive growths are considered benign although they are without a capsule. They invade local areas and compress and destroy adjacent muscular and fibrous tissues. Wide excision is necessary because their limits are hard to establish, and for this reason portions may remain, causing the growth to recur. Differentiation of desmoid tumors from fibrosarcoma is very difficult. Two cases are described, one of a boy aged 15 and the other of a woman aged 25. In the boy there was a large mass in the left thigh which had been increasing in size for a year. In the woman an asymmetry had been noted in the buttock for six months. The limb of the boy was amputated with high hip disarticulation. In the woman the mass was removed together with all adjacent fascia from the left posterior lumbar region, buttock, and upper posterior thigh; one year and four months later a small fibrous mass in the same area was radically removed. There was no recurrence. Both of these growths had a preoperative diagnosis of fibrosarcoma.

Multiple Kerato-acanthomas, P. A. J. Smith. Proc. Roy. Soc. Med. 49: 428-29, 1956.

This disease is characterized by the presence of one or more tumors which appear first as a dome-shaped papule with a central keratotic crater, and showing a microscopic picture of benign papilloma or downgrowth into the dermis which arouses suspicion of malignancy. It only rarely becomes a true squamous carcinoma with metastasis to the regional lymph nodes. Four types are recognized: (1) a single molluscum sebaceum, (2) tar mollescum, single or multiple, (3) multiple lesions following sunburn or gasoline burns, or of unknown cause; (4) multiple with a familial incidence. A case is reported in a man aged 36 who had never worked with tar or pitch, and who had no relevant family history. Over a 5-year period, 25 lesions developed. They were treated by excision, cauterization, curettage and radiotherapy; some tended to recur unless treated by excision.

ONYCHOLOGY

Developmental Nature of Pachyonychia Congenita: A Twenty Year Study of a Case, C. S. Wright. Internat. Rec. Med. 169: 368-70, 1956.

A case of pachyonychia congenita is de-

scribed in a man followed for 20 years, and first seen at the age of six. He had little use of his fingers because of the overgrowth of the nailplates. His feet had denuded, crusted patches extending from the soles up to the medial and lateral aspects. Elevated lesions resembling keratotic plugs occurred over the shoulders, elbows and knees. Wet dressings of buffered cysteine hydrochloride applied to the crusted areas brought healing within 10 days, but they recurred continually. In 1942 the nail plates were removed; 7 months later there were partial thickening of the nailplates and erosive, crusted lesions on the feet, which again responded to cysteine hydrochloride. Two years later all nails had regrown to one-half of their original thickness. The tip of one finger was removed as a trial therapeutic method. Four months later the patient requested the same treatment of all the other fingers and the thumb of the right hand, as he could use that one finger without pain for the first time in his life. The operation was performed and a year later the same was performed on the left hand. The patient was even able to take piano lessons. The feet still have denuded areas on the soles from time to time and are treated with Burow's solution.

RHEUMATOID DISEASES—ARTHRITIS

Diagnosis and Treatment of Gout, J. H. Talbott. J. Louisiana St. M. Soc. 108: 149-56, 1956.

A pathognomonic sign of gout, the occurrence of a few white lumps in the ear, is not observed in most patients; they are found in patients who have had a number of attacks. The familial incidence of gout should be considered and also the concentration of uric acid in the serum of relatives, even though they have no joint disease. Three helpful symptoms are passage of uric acid gravel or uric acid stones, albuminuria, and hypertension. An increased production of uric acid in the serum causes an increased concentration of uric acid in the serum and increased excretion by the kidneys. If urine excretion is inadequate to dissolve the uric acid, precipitation in the tubules or the renal pelvis may result. Colchicine is specific for gouty arthritis, and for no other type of arthritis. When given orally or intravenously it is helpful both in diagnosis and therapy. The prognosis is good; very few die of the disease. Prognosis is enhanced by use of Benemid. One or two tablets daily are given in severe cases. The drug is helpful in treatment of patients who cannot tolerate colchinine. A few patients following its use develop a skin rash or some gastrointestinal irritability. Both Benemid and colchicine should be used in severe cases, Even when free from attacks, the patient should not remain off Benemid very long.

Gout as a Cause of Respiratory Obstruction, J. B. Cavenagh and J. E. Blundell-Williams. J. Laryng. & Otol. 70: 365-70, 1956.

A case is presented of threatened respiratory obstruction due to edema of the glottis in a gouty man aged 75. Because of his serious symptoms he was taken to a hospital 25 miles from his farm, as the obstruction might demand tracheotomy. He improved little after treatment with atropine, penicillin, saline drip, and rest in a steam cabinet. He asked for some of his gout medicine, sodii sal. and colchicum mixture; rapid improvement followed. He was discharged on the ninth day of his illness. When sudden onset of pain in the throat occurs, with intense dysphagia, associated with threatened respiratory obstruction in an elderly subject, enquiry should be made regarding a history of gout. The literature is reviewed on gouty diathesis manifested in diseases of the throat, with records of some similar cases.

Prevention and Correction of Deformity in Rheumatoid Arthritis, M. Swanson. Canad. M. A. J. 75: 257-61, 1956.

The basic principles of treatment in rheu-

matoid arthritis are generalized rest, use of analgesics and physiotherapy, and local splinting. Splints are especially beneficial, (1) when a joint is acutely and painfully swollen; (2) when muscular spasm about a joint is producing deformity; (3) when subluxation has impaired function which can be improved if the limb wholly or in part is held in a better position. Factors in joint deformity are destruction of the articular structure and muscular spasm, the latter being the initiating cause. Spasm may be relieved and deformity prevented by use of a light comfortable splint, worn continually at first and intermittently later. The natural purpose of muscle spasm is to prevent any increase in pain and dosage to the joint by movement. Fatigue and atrophy of muscle fibers follow continued muscle spasm and disuse. A splint serves as an artificial spasm-substitute Three cases are described and illustrated.

Quantitation of the Manifestations of Rheumatoid Arthritis. 4. *Area of Joint Surfaces as an Index to Total Joint Inflammation and Deformity,* J. Lansbury and D. D. Haut. Amer. J. M. Sci. 232: 150-55, 1956.

A count of the number of affected joints does not provide an estimate of the status of the arthritic patient; the size of the affected joints must be considered. To sum up degrees of restricted motion, the exact percentage of loss of full motion for each joint can be calculated, and expressed in terms of joint size, but this is a cumbersome process. The authors present anatomical measurements of the area of bone ends which together form the peripheral joints; this total peripheral joint surface is almost exactly 1 sq. meter. Tables are presented for determining the area of bone surfaces composing individual joints; values for individual joints for calculating total amount of joint involvement in rheumatoid arthritis; and for summing up grades of total joint inflammation and deformity. These measurements of joint size may be used to determine spread of the disease. Further studies are being made to show the value of summations of deformity in relation to degrees of functional impairment.

Diagnosis and Treatment of Osteoarthritis, P. J. Warter. Delaware M. J. 28: 117-22, 1956.

Although osteoarthritis is considered a disease of middle or old age, it occurs frequently in young persons, particularly those engaged in strenuous outdoor occupations and sports. It results from constantly changing mechanical conditions and attempts at structural adaptations. Alterations in joint functions often distract attention from serious changes in the body itself which might give vital clues. The amount of pain is unrelated to the degree of arthritis observed by the physician or revealed in the X-ray. Rheumatoid arthritis is not localized but is a systemic disease with joint symptoms. Osteoarthritis tends to be monoarticular rather than polyarticular. There is involvement of the terminal interphalangeal joints. The nodes are of two types: traumatic and idiopathic; they slowly increase in size and eventually affect many digits. They are most common in women over 60. The knee because of its wide range of motion is very susceptible to osteoarthritic changes. Osteoarthritis of the hip is the most disabling form and may occur in both hips. The spine is very vulnerable, particularly the lower cervical and lumbar regions. When in the sacroiliac spine the pain is lancinating.

The various causes are described: trauma, faulty diet, fatigue, degenerative vascular changes, and climacteric factors. The degenerative changes are permanent but the patient should be assured that osteoarthritis rarely cripples the joints, as in rheumatoid arthritis. Therapeutic measures include proper rest, weight control, reduction of carbohydrates in the diet, relaxation produced by dimethylane with or without

Reserpine, control of pain with analgesics (aspirin), use of hesperidin and ascorbic acid to correct abnormal capillary fragility or permeability. Nicotinyl salicylate, supplemented by aspirin, is helpful in patients with disturbances in peripheral circulation. Moist heat is a soothing agent.

Gout: A Neglected Entity, L. A. Grossman. J. Tennessee State M. A. 49: 270-73, 1956.

Gout is a common disorder whose diagnosis is frequently overlooked. More than 95 per cent of the patients are men. In 65 per cent of cases this disease involves the big toe in the beginning and in 95 per cent ultimately. It is a metabolic disorder associated with premature arteriosclerotic changes and is frequently found in patients with coronary disease. The disease is present in other members of the family in 30 to 35 per cent of cases. A pathognomonic sign is the presence of tophi in the ear, knuckles, hands, toes, feet, patellar and olecanon bursae, but this sign rarely occurs before the tenth year of the disease, and in only 20 to 40 per cent of patients. Determination of blood uric acid helps to confirm the presence of gout. The diagnosis is established by administration of colchicine which has a dramatic effect, bringing relief of pain in one to two days. The drug does not relieve pain in any other type of acute arthritis. Treatment consists of bedrest, adequate fluid intake, and administration of colchicine tablets gr. 1/100 or 1/120 every one to two hours. Usually 8 to 16 tablets are required for the average attack. In addition to colchicine, cortisone orally 50 mg. four times daily for two days and then 25 mg. four times daily for four days may be given. Butazolidin gives relief in 24 hours. The initial dose is 300 mg. followed by 200 mg. every three hours for three doses. Chronic tophocous gout may be prevented or retarded by prolonged use of Benemid, 1 to 2 gm. daily, but it must be used with caution if urate calculi are present. Eight case histories are presented.

Oral Phenylbutazone in the Treatment of Acute Gouty Arthritis, G. M. Wilson, Jr., E. R. Huffman and C. J. Smyth. Amer. J. Med. 21: 232-36, 1956.

Phenylbutazone brings early control of pain and can be given in relatively large initial doses. Sixty acute attacks of gout in 44 male patients were treated with phenylbutazone given orally in 100 mg. coated tablets every 4 hours, or 200 mg. every 4 hours (800-1200 mg. daily) or 400 to 800 mg. as a single dose. The drug was given for 1 to 5 days. Marked relief from pain usually occurred in 8 to 12 hours, followed by gradual resolution of all signs of joint inflammation within 24 hours. Pain was relieved on attainment of a mean serum phenylbutazone level of 3.09 $\pm$ 0.57 mg. per cent. The side effects following colchicine therapy (diarrhea, nausea and vomiting) do not occur with this drug. The recommended dosage is a large initial dose of 400 to 800 mg., followed intermittently by 100 or 200 mg. four times daily for 3 days, or until the attack subsides.

SURGERY

Tape Closure of Wounds, P. Williamson. Med. Times 84: 749-51, 1956.

A new method of wound closure is described as having definite advantages. A film of the polyester series resembling the plastic material used in packing foods, is cut into rolls ½ to 3 inches in width; one side is coated with a skin adhesive developed by the Minnesota Mining and Manufacturing Company, which is nontoxic and does not allow bacterial growth. It is cheap, easily produced, painless in application, and exerts no localized external pressure. Small holes in the tape just over the wound allow free drainage. An ordinary dressing is applied over the tape. Scarring is practically eliminated.

Skin Grafts for Chronic Wounds of the Lower Extremity, J. E. Murray and B. Cannon. J. A. M. A. 151: 1462-65, 1956.

Postphlebitic or varicose ulcers with in-

termittent healing and ulceration may eventually lead to neoplastic changes. Treatment is aimed to either close the wound, or to replace the scarred tissue with a pliant functional skin graft. The graft will be successful if the site furnishes a sufficient blood supply to the graft, if bacterial growth is controlled, collection of blood or serum under the graft is prevented, and complete immobilization is maintained between the undersurface of the graft and the recipient site until vascularization is established. Cleanliness is most important and is most effectively secured by a dressing of fine mesh gauze once or twice a day after debridement of necrotic tissue in preparation for grafting. Antibiotics applied topically are of little value. Dressings after operation should not be disturbed for 4 or 5 days unless there is evidence of infection or of a hematoma. Ambulation begins with graded activity during the third week. Four cases of ulceration are discussed, one behind the knee which led to epidermoid carcinoma, another on the lower leg with skin necrosis, a third on the dorsum of the right foot with recurrent infection, and the fourth on the lateral aspect of the left ankle.

MISCELLANEOUS

Shoe-Fitting X-Ray Fluoroscopes: Radiation Measurements and Hazards, E. D. Dyson. Brit. M. J. 2: 269-72, 1956.

The radiation hazard of the X-ray fluoroscope for demonstrating the fit of shoes was experimentally tested in England, all the machines being British made. The duration of each separate viewing varied from 5 to 20 seconds in the machines tested; later machines have timers limiting exposures to 10 seconds. American machines, as reported in 1950, gave exposures of 5 to 45 seconds, or about 20 seconds average. A customer may look into the machine for a few seconds once or twice a year, or may look at several pairs of shoes, then go to another store and repeat the process. He is also subjected to scattered irradiation coming from the foot opening of the machine and through the material of the viewing hood. Children may get new shoes every three months and this brings up the question of irradiating growing tissue, especially of the epiphyses of the foot, and the epiphyses around the knees. Push-buttons marked "Man," "Women," "Child" control the main inputs to the high tension transformer; at the "Man" button the X-ray tube runs at 53 kV peak, 5 mA; the "Woman" button, 51.5 kV peak, 4 mA; the "Child" button 50 kV peak, 3 mA. Beam intensities are thus progressively reduced from 100% ("Man" button) to 60% ("Child" button). Although 100-200 *r* is required in a single dose to give detectable changes in epiphyses, children may be viewed regularly over a period of years and a permissible weekly dose may be established.

The contribution made by shoe-fitting fluoroscopes to the total dose of radiation accumulated by the whole population must be considered in connection with genetic effects in the population and the dose to be considered is that received by the gonads. If each person of the population examines one pair of shoes a year with a fluoroscope for 10 seconds, and three assistants exposed to radiation from each machine, for about 30 pairs of shoes examined each working day, and these figures are multiplied by the number of machines in use in the country, a typical value for the gonad dose to the whole population may be estimated. When this population dose is compared with the background radation received by the population, it is found that the shoe fitting fluoroscope dose rate is only 1/1000 of the natural background dose rate, which is negligible in regard to its genetic effect. Possible control measures are suggested, such as regulations to control doses of radiation, better screening of the machines and periodic checking of the machines.

ORGANIZATION NEWS

Secretaries of local, state, regional affiliated, subsidiary and other related organizations are invited to submit copy for this column.

ARKANSAS

At the annual meeting held in Little Rock, Ark., recently, the following officers were elected for the coming year: Dr. A. M. Dyer, Little Rock, Ark., President; Dr. Leo J. Thuerk, Fort Smith, Ark., Vice President, and Dr. Walter C. Gigerich, Hot Springs, Ark., Secretary-Treasurer.

Dr. William P. Walker, El Dorado, Ark., was recommended for appointment to the State Board.

MICHIGAN

Northeastern

At its last meeting, the Northeastern Michigan Chiropody Association elected the following officers: Dr. William F. Borchard, President; Dr. William Wagner, President-elect; Dr. Herbert Karol, Secretary-Treasurer and Dr. Don Borchard, Legislative.

NEW YORK

Dr. Irving L. Marks, Elmira, New York, was re-elected president of the New York State Podiatry Society at its annual convention held at the Hotel Sagamore in Lake George during mid-July.

In addition to the re-election of Dr. Marks, Dr. Theodore B. Eden, Bayshore, N. Y., First Vice-President; Dr. Milton Werbel, Bronx, N. Y., Second Vice-President, and Dr. Emanuel E. Sugarman, Rockville Centre, N. Y., Controller, were all re-elected.

Also in attendance at the annual meeting

"LIFE'S FOUNDATION — YOUR BABY'S FEET" is an outstanding and comprehensive booklet on the growth and care of children's feet. Written for the layman, it is concise, cleverly illustrated and will prove valuable especially to the parents of young children. Many Chiropodists have received a copy of this booklet and have ordered them in quantity. For those of you who have not ordered and for those who wish to reorder, please clip the order blank below and mail with your check for your supply.

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were Senator Berkowitz and Assemblyman Wilson of the New York State Legislature who were honored for the invaluable assistance they rendered during the passage of the Podiatry Society's Blue Shield law.

NORTH CAROLINA

Dr. W. P. Embry is the only chiropodist practicing in Roanoke Rapids. Because he is seriously ill, the members of the State Association are taking turns caring for Dr. Embry's patients until he recuperates. They are doing this not only to help Dr. Embry, but to provide continuous chiropody service to the community Dr. Embry serves.

OHIO

Midwestern Academy

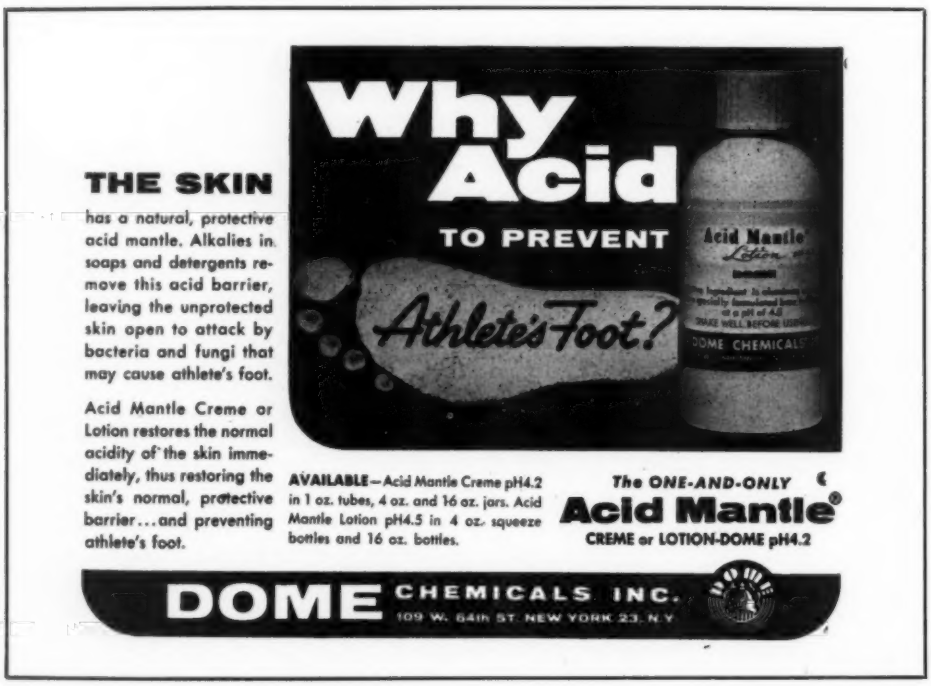
The newly formed Midwestern Academy of the Ohio Chiropodists Association has elected the following officers for 1957-58: Dr. Morton Levine, Dayton, Ohio, President; Dr. Marion George, Dayton, Ohio, Vice-President; Dr. Lowell Schaeublin, Dayton, Ohio, Secretary; Dr. Forrest Cox, Greenville, Ohio, Trustee to the state Executive Board, and Dr. Lon Cooper, Sidney, Ohio, Alternate Trustee.

SOUTH CAROLINA

The quarterly meeting of the South Carolina Chiropody Association was held in June at the Fort Sumter Hotel, Charleston, S. C.

Dr. Bernard Silver, program chairman, introduced as guest speakers, Dr. Edwin Boyle of the Charlestown Medical College, specialist in the vascular system with particular emphasis on the metabolic phase and Dr. Carter Maguire, specialist in plastic surgery.

The next quarterly meeting will be held in September at Columbia, S. C.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Athlete's Foot?
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NEW OFFICERS OF CHICAGO COLLEGE OF CHIROPODY

At the recent meeting of the Board of Directors of the Chicago College of Chiropody, the following administrative personnel were elected: E. P. Durkin, D.S.C., Chicago, Ill., President; A. C. Everly, D.S.C., South Bend, Ind., Vice President; Walter H. Garrison, Chicago, Ill., Secretary-Treasurer; Herman G. Miller, D.S.C., Chicago, Ill., Registrar; Kurt L. Eichelbaum, M.D., Chicago, Ill., Dean, and John B. Collet, D.S.C., Des Plaines, Ill., Assistant Dean.

Board of Directors of the college are: E. P. Durkin, D.S.C., President and Chairman; A. C. Everly, D.S.C., Vice President; Walter H. Garrison, D.S.C., Secretary; Joseph Doller, D.S.C.; L. M. Nitchie, D.S.C.; T. A. Campbell; E. B. Stivers, D.S.C.; Max Physter, M.D.; Louis Diamond, D.S.C., and James Everly, D.S.C.

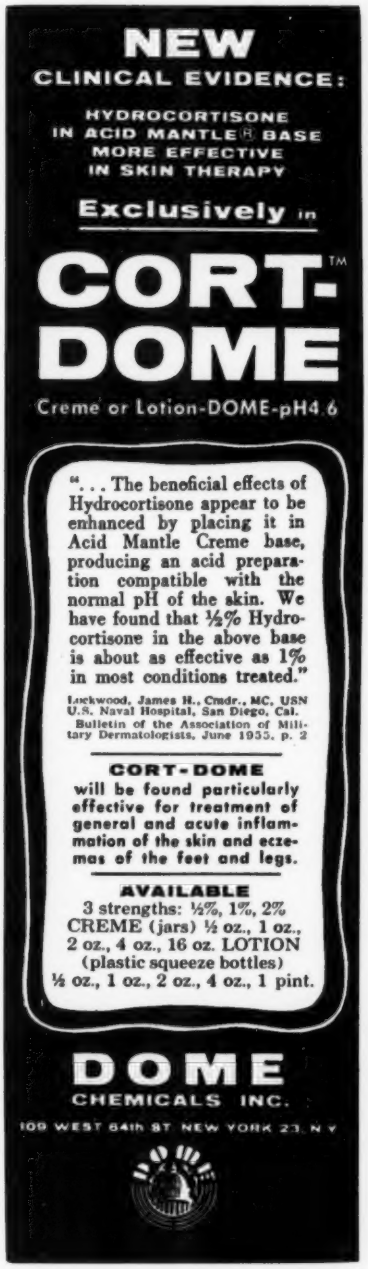
GOLFING MAGAZINE REPRINTS "THE GOLFER'S FOOT"

The June issue of "Golfing," the National Golfers Magazine, carried an article, "Your Power's in your Feet," by Milton D. Roven, Pod.D. The editor's note accompanying the article states that it is excerpted material from the Journal of the National Association of Chiropodists. Our readers will recall Dr. Roven's article, "The Golfer's Foot," in the February, 1957, issue of the Journal.

Herb Graffis, Editor of "Golfing," wrote in part to Dr. Roven as follows:

"I have had some favorable comment on this piece of yours and I want to thank you again for giving us the opportunity of giving your authoritative statements some publicity outside the professional field of the foot specialist.

"I believe there are going to be quite a few golfers who will be grateful to you for this piece, which not only gives them good advice but reminds them that they'd better pay more attention to their feet."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Lockwood, James H., Cmdr., MC, USN U.S. Naval Hospital, San Diego, Cal. Bulletin of the Association of Military Dermatologists, June 1955, p. 2
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CONVENTION DATES AND MEETING NOTICES

National Association of Chiropodists
Washington, D. C.
August 20-26, 1958
Shoreham Hotel

Region One
(Conn., Maine, Mass., N. H., R. I., Vt.)
Boston, Mass.
Sept. 13-15, 1957
Sheraton Plaza Hotel

Region Two
(New York)

Region Three
(Del., Md., N. J., Pa.)
Atlantic City, N. J.
April 17-20, 1958

Region Four
(Ohio)

Region Five
(Ill., Ind., Mich., Wis.)

Region Six
(Colo., Iowa, Kan., Minn., Mo., Nebr., N. Dak., S. Dak.)
April 11-13, 1958

Region Seven
(Idaho, Mont., Oreg., Wash., Wyo.)

Region Eight
(D. C., N. C., S. C., Va., W. Va.)
Huntington, W. Va.
*November 15-17, 1957
Hotel Pritchard
*Note change of date

Region Nine
(Florida)

Region Ten
(Ala., Ga., Ky., Miss., Tenn.)

Region Eleven
(Ark., La., N. Mex., Okla., Texas)

Region Twelve
(Ariz., Cal., Nev., Utah)

MISSOURI ASSOCIATION OF CHIROPODISTS
Kansas City, Mo., Oct. 11-13, 1957
President Hotel

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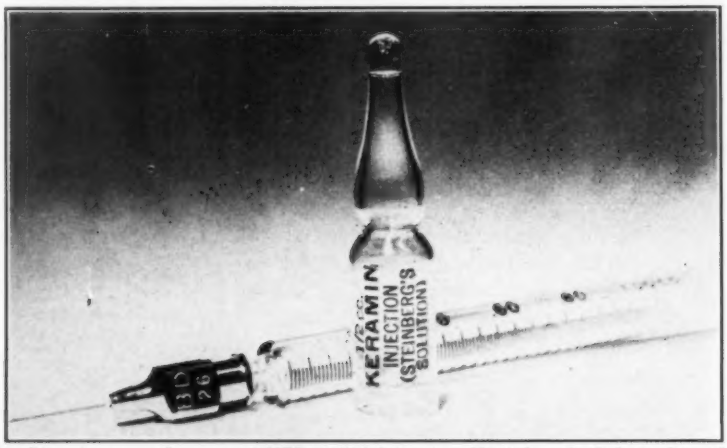

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DEATHS REPORTED

Dr. Nicholas J. Medici
Woodhaven, N. H.

Dr. Ida M. Melin
Moorhead, Minn.

Dr. Melin joined the Association in June, 1913, and was elected to honorary membership in 1950.

LEGAL AND LEGISLATIVE

California

On June 11, 1957, the Governor signed into law amendment to a State Practice Act providing for the creation of a Chiropody Examining Committee and prescribing its powers and duties.

Illinois

State legislature has passed and the Governor signed into law a bill under which chiropodists will be participants in Blue Shield.

West Virginia

West Virginia has just passed a new law requiring a student to have two years of pre-chiropody before entering a chiropody college. After graduation, he must have one year of internship.

* * * * *

Milkman's Feet. Joseph Riley, sixty-five, milkman to Britain's Royal Family, is ready to take it easy after forty-two years of delivering milk at Clarence House when Queen Elizabeth II and her sister Princess Margaret were children.

"I suppose I've delivered more milk to royalty than any milkman alive," Riley remarked, looking down at his feet, "but it's all over after today. My feet, they're getting a wee bit tired."

A more complete statistical report might have included Mr. Riley's total mileage, the number of shoes worn in almost a half a century of service, and his particular foot ailment.

A PATIENT CAN BE *ALL WET*...
Yet keep a Doctored Foot DRY!

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The watertight latex sock that permits tub, shower, pool or surf bathing while an ailing foot is under treatment.

S-t-r-e-t-c-h-e-s on and off easily. Flesh pink. Sizes (as for shoes)
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Edward M. Smith, Garrison, New York
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Julius Rothschild, Long Island, New York
Katzenstein Professional Supply Corp., N. Y.
National Medical Supply Co., Chicago
Service Surgical Supply, Chicago, Ill.
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TERMS TO SUIT

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MOOD ELEVATORS

Contributions to this column are more than welcome. In fact it depends upon them.
A.O.P.

Sick Tissue

Most people yell about hospital bills and the "fixer" has a rough time straightening things out. Recently in a hospital a patient exclaimed, "Whatcha mean, charging me 12 bucks for Kleenex? Why I can buy ——"

"We don't charge for Kleenex," interrupted the fixer. "Let's see that bill."

It was $12 for tissue pathology.

M. V. Simko, Bridgeport, Conn.

• • • •

No girl is ever insulted by a proposition that has a genuine ring to it.

Dan Bennett

• • • •

The best place for your bathroom scales is right in front of your refrigerator.

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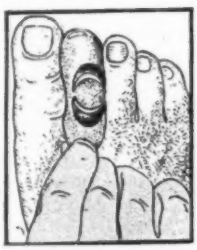

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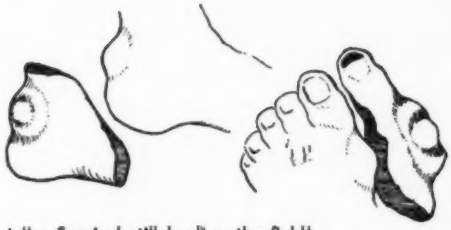

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St. Louis Office
Dr. Gerald Cohen, 3150 So. Grand Blvd., St. Louis, Mo.
Virginia Office
Dr. Julian Levin, 3147 No. Washington Blvd., Arlington, Va.

Courageous Kid

Tommy Hess, aged 3, had a broken foot. The doctor said it would have to be put in a cast and told Tommy it might hurt. Tommy said nothing but got up on the operating table and went through the job without a whimper, although the operation lasted 40 minutes. At its conclusion the doctor praised the little fellow for his courage.

Looking up, Tommy said, "It's the other foot that hurts."

AP despatch from Kansas City

• • • •

No Vacancy

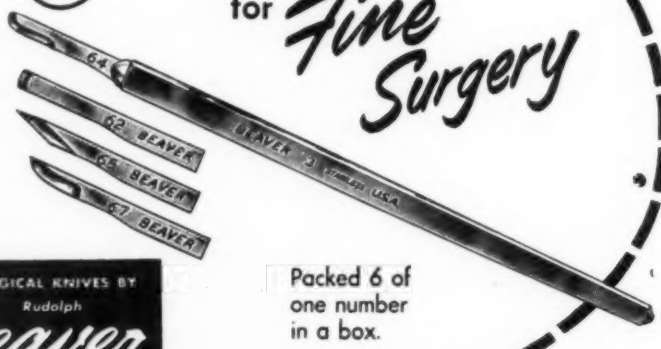
Eddie was a clerk in a small town store. He was not noted for efficiency, nor was he ever accused of being too speedy.

One day he failed to show up. "Sick?" inquired a customer. "Nope," said the boss. "He ain't workin' here no more."

"No foolin' " said the villager. "Got anybody in mind for the vacancy?"

"Nope. Eddie didn't leave no vacancy."

Miniature Blade Knife for *Fine Surgery*



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Send Rx and casts to
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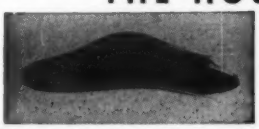
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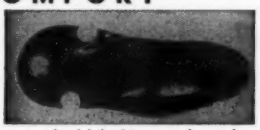

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